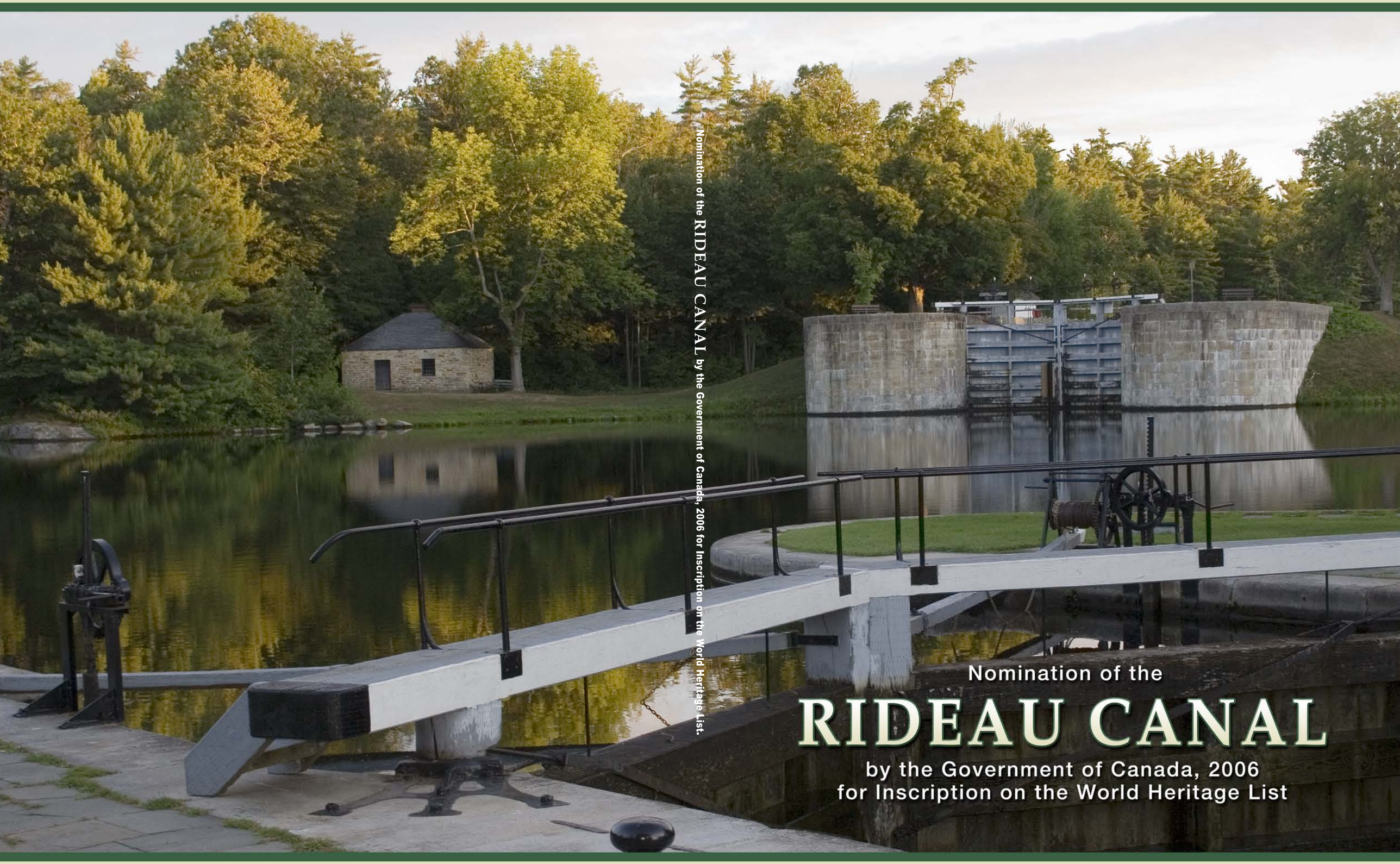


Nomination of the RIDEAU CANAL by the Government of Canada, 2006 for Inscription on the World Heritage List.

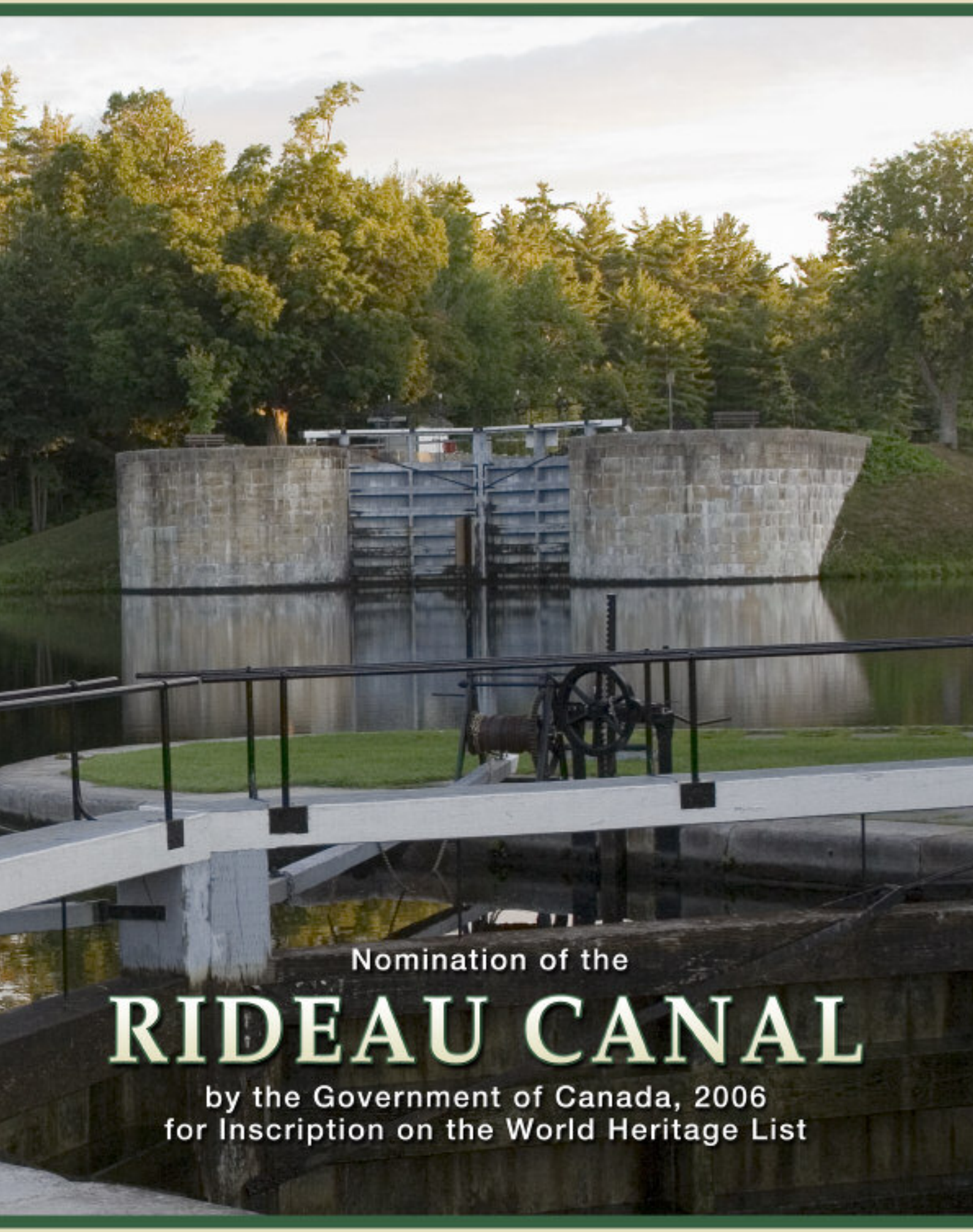
Nomination of the

# RIDEAU CANAL

by the Government of Canada, 2006
for Inscription on the World Heritage List

Parks Canada Parcs Canada

Canada



Nomination of the

# RIDEAU CANAL

by the Government of Canada, 2006
for Inscription on the World Heritage List

Parks Canada Parcs Canada

Canada

# Table of Contents

# Executive Summary

## *State Party*

Canada

## *State, Province, or Region*

Province of Ontario

## *Name of property*

The Rideau Canal

The nominated property consists of the engineering works, associated fortifications, buildings, lockstation grounds and their archaeological resources, and the watercourse of the slackwater canal system.

## *Geographical coordinates to the nearest second*

The northern entrance to the canal at Ottawa, on the Ottawa River, is located at 75° 42′ west longitude and 45° 26′ north latitude. The southern entrance at Kingston, at Lake Ontario, is located at 76° 28′west longitude, and 44° 14′ north latitude.

## *Textual description of the boundaries of the nominated property*

The nominated property consists of six elements, the Rideau Canal with its lockstations and the navigable sections of the slackwater canal system, and the fortification sites in Kingston. The boundaries of the Rideau Canal consist of the high water mark of the slackwater canal sections and the Parks Canada Agency's property at the twenty-four lockstations. The boundaries of the Kingston fortifications are defined by Parks Canada Agency and Department of National Defence property.

## *Maps and plans, showing the boundaries of the nominated property and buffer zone*

Map 1 shows the entire nominated property at the scale of 1:657 296.

Map 2 shows the location of the Rideau Canal within the State Party at the scale of 1:27 718 254.

Map Series 3.0 to 3.57, located in the Map Annex, shows the nominated property and buffer zone at a scale of 1:20 000.

Map Series 4.0 to 4.24, located in the Map Annex, shows the lockstations at a scale of 1:4 800.

Map 5, located in the Map Annex, shows the fortifications at a scale of 1:12 600.

## *Justification: Statement of Outstanding Universal Value*

In concept, design, and engineering, the Rideau Canal is the most outstanding surviving example of an early 19th century slackwater canal system in the world, and one of the first canals designed specifically for steam-powered vessels. It is an exceptional example of the transfer of European transportation technology and its ingenious advancement in the North American environment. A rare instance of a canal built primarily for strategic military purposes, the Rideau Canal, together with its ensemble of military fortifications, illustrates the significant stage in human history when Great Britain and the United States of America vied for the control of the northern portion of the North American continent.

## *Criteria under which the property is nominated*

**Criterion (i): The Rideau Canal is a masterpiece of human creative genius.**

Through a fundamental stroke of creative genius, Lieutenant-Colonel John By of the Royal Engineers envisioned the creation of a slackwater canal on a monumental scale. This approach was highly innovative – and technologically risky. The slackwater system was virtually untried at this time in Europe.

**Criterion (ii): The Rideau Canal exhibits an important interchange of human values, over a span of time or within a cultural area of the world, on developments in technology.**

Building the Rideau Canal and its fortifications required adapting existing European technology to the North American environment and to the specific circumstances and geography of its setting. The experience gained in the engineering of canal works and fortifications for the Rideau Canal advanced these technologies to a new level.

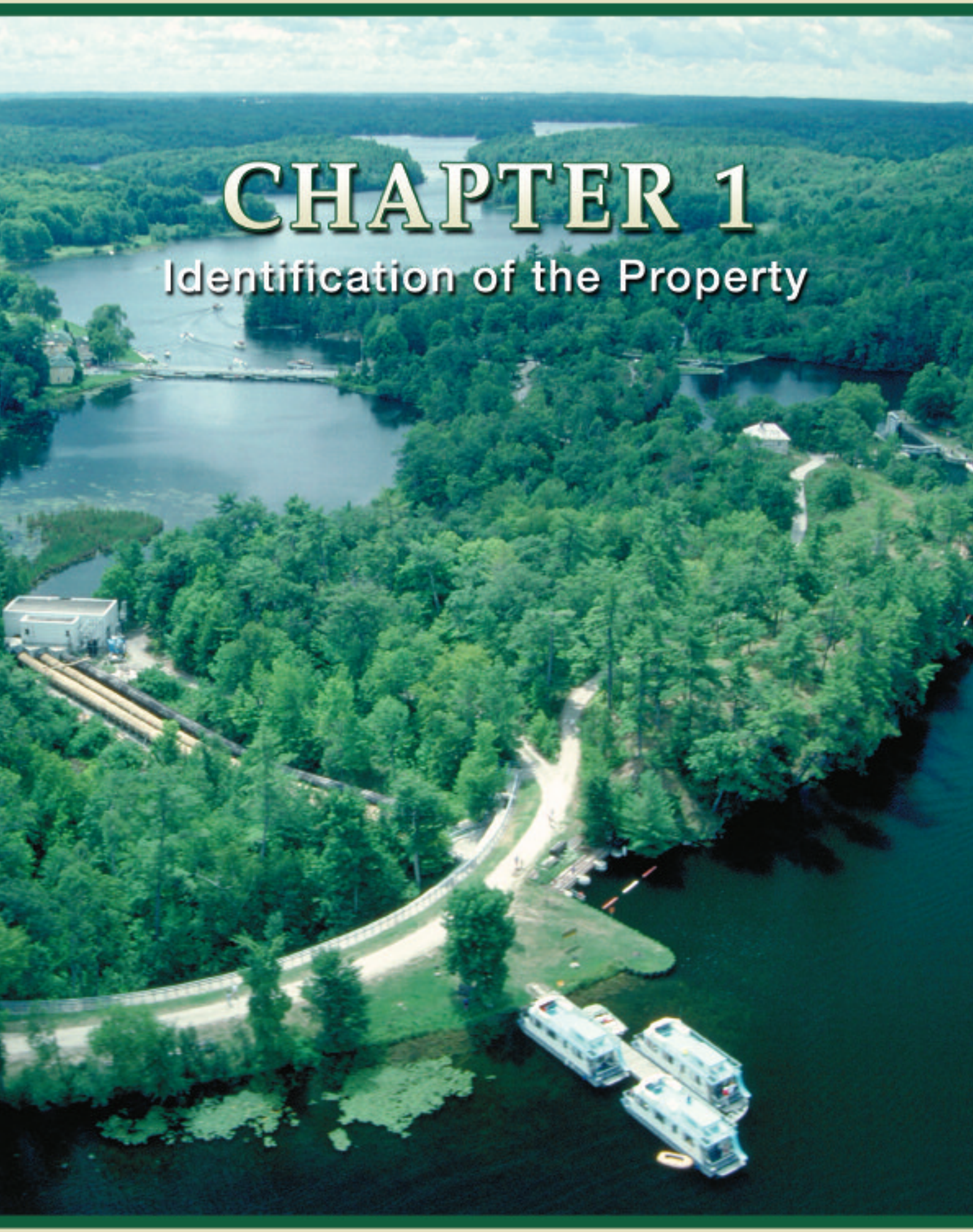
**Criterion (iv): The Rideau Canal is an outstanding example of a technological ensemble which illustrates a significant stage in human history**.

One of the very few canals in the world built primarily for strategic military purposes, the Rideau Canal and its associated defensive works were built at a time when Great Britain and the United States of America vied for control of the northern portion of the North American continent.

## *Name and contact information of local institution/agency*

Superintendent, Rideau Canal
Parks Canada Agency
34A Beckwith Street South
Smiths Falls, Ontario
K7A 2A8, Canada

Telephone: 613-283-5170
e-mail: rideaucanal-info@pc.gc.ca



# CHAPTER 1

## Identification of the Property

# 1. Identification of the Property

## *A. Country/State Party*

Canada

## *B. State, Province, or Region*

Province of Ontario

## *C. Name of property*

The Rideau Canal

The nominated property consists of the engineering works, associated fortifications, buildings, lockstation grounds and their archaeological resources, and the watercourse of the slackwater canal system.

## *D. Geographical Coordinates to the nearest second*

The northern entrance to the canal at Ottawa, on the Ottawa River, is located at 75° 42' west longitude and 45° 26' north latitude. The southern entrance at Kingston, at Lake Ontario, is located at 76° 28' west longitude, and 44° 14' north latitude. The coordinates for the six elements of the property are listed on the Serial Nomination Table.

## *E. Maps and plans, showing the boundaries of the nominated property and buffer zone*

Map 1 shows the entire nominated property at the scale of 1:657 296.

Map 2 shows the location of the Rideau Canal within the State Party at the scale of 1:27 718 254.

Map Series 3.0 to 3.57, located in the Map Annex, shows the nominated property and buffer zone at a scale of 1:20 000.

Map Series 4.0 to 4.24, located in the Map Annex, shows the lockstations at a scale of 1:4 800.

Map 5, located in the Map Annex, shows the fortifications at a scale of 1:12 600.

## *F. Area of nominated property and proposed buffer zone*

***Area of nominated property:*** 21 454.81 ha

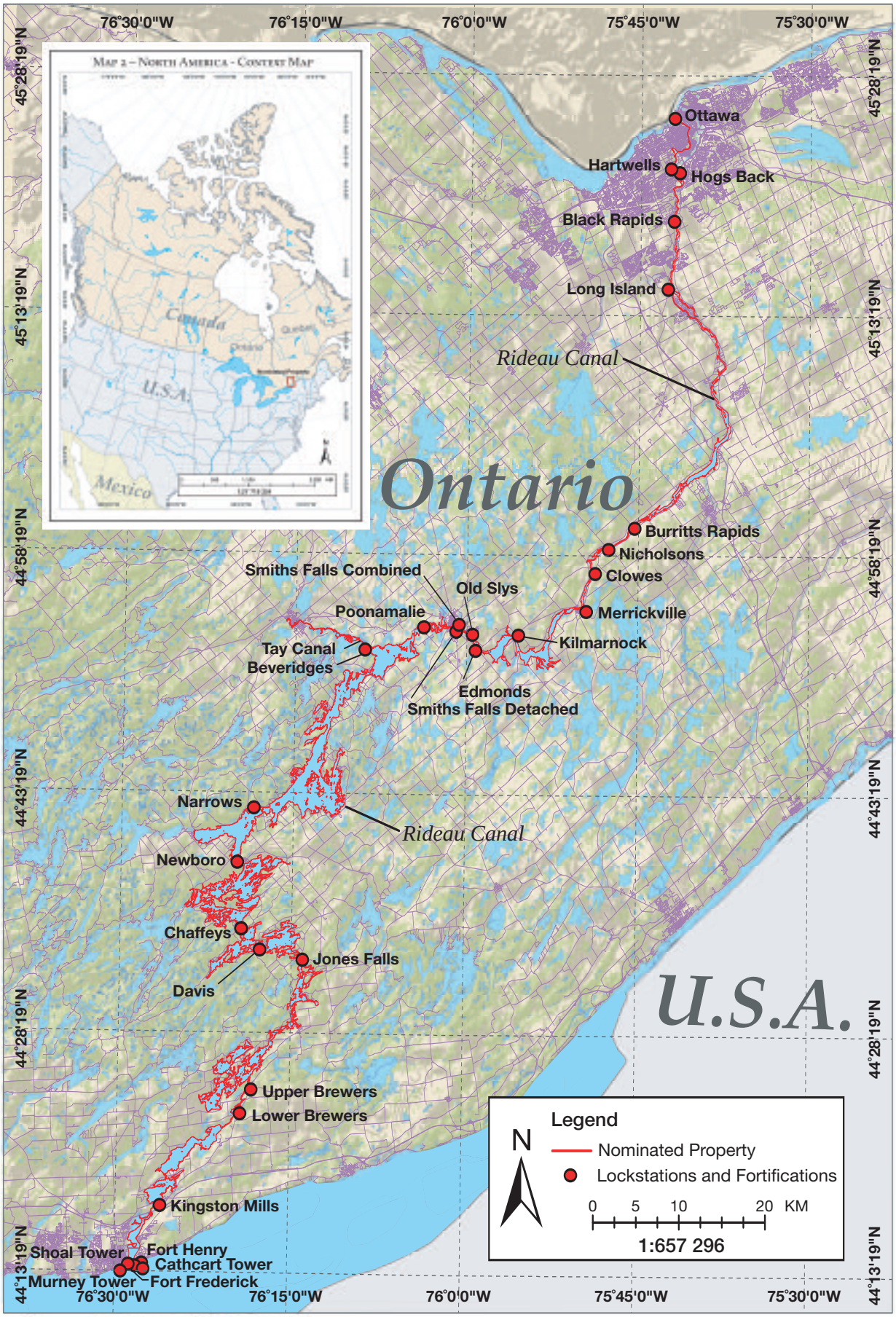
**Buffer Zone:** 2 363.20 ha

**Total:** 23 818.01 ha

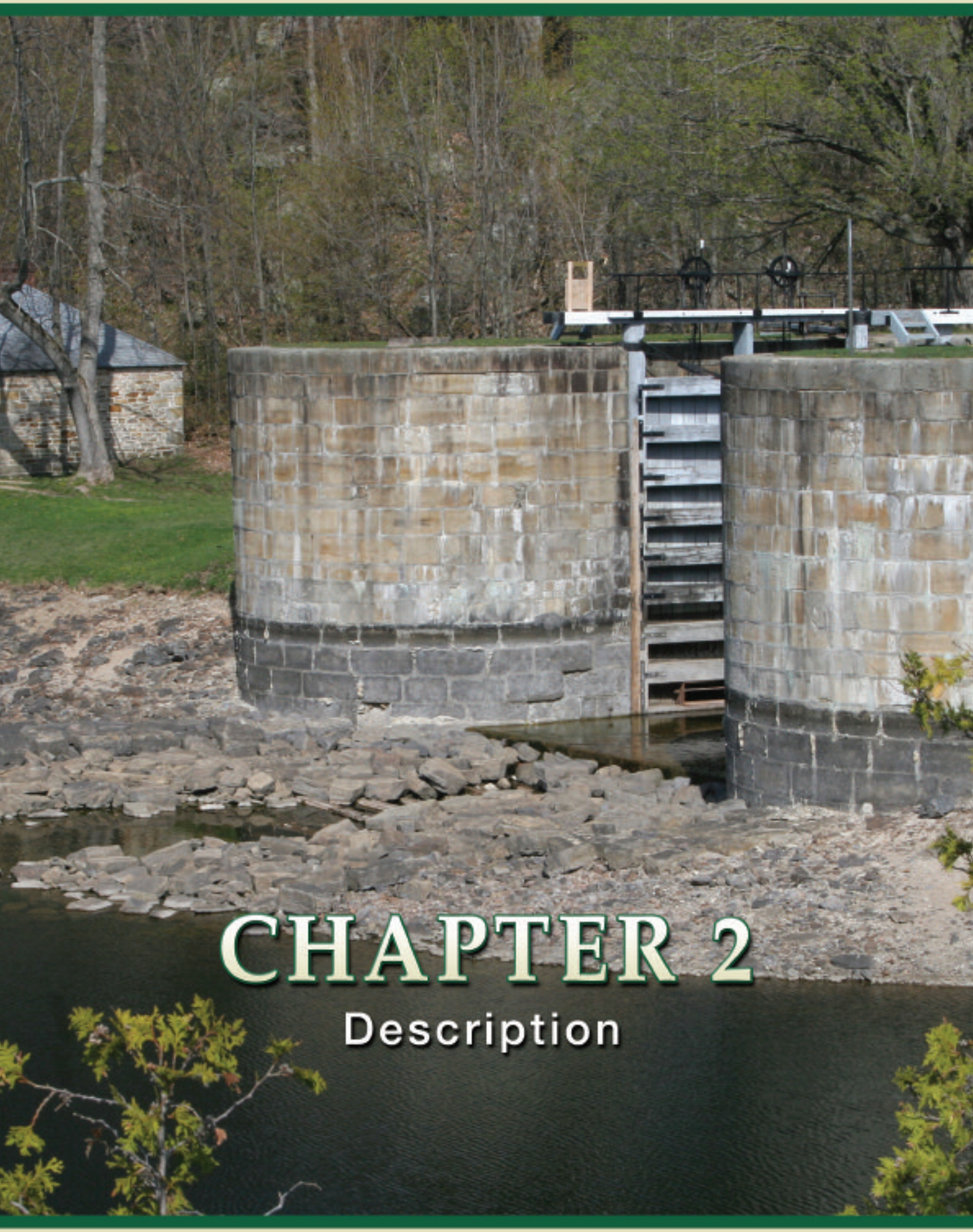
## Serial Nomination Table

| Element NO. | Name of Element | Area (ha) | Buffer (ha) | Geographic Coodinates | | Map Number |
|---|---|---|---|---|---|---|
| 01 | **Rideau Canal** | 21427.07 | 2334.78 | From N45 20 21.31 (Ottawa Lockstation) to N44 15 52 49 (Lake Ontario) | W75 42 6.11<br>W76 28 00.46 | 1<br>2<br>3.1 - 3.57<br>4.1 - 4.24 |
| 02 | **Fort Henry, Kingston** | 23.90 | 11.88 | N44 13 51.41 | W76 27 35.70 | 5 |
| 03 | **Fort Frederick, Kingston** | 3.10 | 3.00 | N44 13 40.64 | W76 28 10.61 | 5 |
| 04 | **Cathcart Tower, Cedar Island** | 0.25 | 9.15 | N44 13 30.04 | W76 27 27.93 | 5 |
| 05 | **Shoal Tower, Kingston** | 0.32 | 1.68 | N44 13 45.88 | W76 28 44.90 | 5 |
| 06 | **Murney Tower, Kingston** | 0.17 | 2.71 | N44 13 19.71 | W76 29 25 22 | 5 |
| TOTAL | | 21454.81 | 2363.20 | | | |

# Map 1 – Rideau Canal - Nominated Property



# Map 2 – North America - Context Map



# CHAPTER 2

## Description

# 2. Description

## *A. Description of property*

This section describes the six elements of the nominated property, from the northern entrance of the Rideau Canal in Ottawa to the Kingston harbour, with its impressive complex of fortifications. All of the land administered by the Parks Canada Agency that is associated with these elements is included in the nominated property, as well as Fort Fredrick National Historic Site of Canada, administered by the Department of National Defence. These six elements are listed in the Serial Nomination Table in Chapter 1.

The Rideau Canal element is subdivided into components composed of each lockstation and the intervening slackwater sections. For each Rideau Canal component, an overview of its geographic configuration, photographs and identification of the major cultural resources are provided, as is the case for the fortification elements. Measurements are included to make clear the scale of the engineering works. The Rideau Canal locks are a standard size, 37,8 m long and 9,1 m wide. Additional photographs will be found in Appendix G.

The Map Annex includes a map for the fortification elements and multiple maps for the Rideau Canal, corresponding to its components.

In the descriptions of the major cultural resources, their heritage classifications, identified through the Parks Canada Agency's *Cultural Resource Management Policy* and the *Federal Heritage Buildings Policy*, are noted. These classifications are defined in the table.

**CRM1**

**Cultural Resource Management Policy Level 1**

Directly associated with the reasons for the designation of the national historic sites, generally with the original construction and military era, 1826 – 1850.

**CRM2**

**Cultural Resource Management Policy Level 2**

Considered to be of historic or architectural significance, but not directly related to the reasons for designation, generally built from 1851 – 1920.

**FHB**

**Federal Heritage Building Policy**

Classified structure considered to be of historic or architectural value.

## Element 01 – Rideau Canal

### Ottawa Lockstation

**0 km – 0,5 km**

The Ottawa locks are located in a valley, called 'Entrance Valley', about 2 km from where the natural course of the Rideau River flows over a high cliff to meet the Ottawa River. Rising 24 m, the massive Ottawa locks demonstrate the innovative design and construction techniques developed to meet the challenges of the terrain. The lockstation has a long and narrow configuration, approximately 100 m wide between the sides of the valley walls and 500 m from the Ottawa River to the present-day Plaza Bridge, which is its southern boundary.


*Image 1* *The flight of eight locks at Ottawa Lockstation is the largest flight on the Rideau Canal.*

*Image 2* *Stone masonry lock walls and cast iron hand-operated winches typify the canal's engineering.*

*Image 3* *The Commissariat building is the oldest building in Ottawa and is now occupied by the Bytown Museum.*

*Image 4* *Stabilized foundations of the Royal Engineers' building, which was demolished in the late nineteenth century as a result of railway construction.*

*Image 5* *The lockstation office is an architecturally fine stone building, befitting its location in Canada's capital city.*



## *Cultural Resources*

**Eight locks** – Manually operated locks in flight with a total lift of 24 m. Locks 6 – 8, 1830. CRM1. Locks 1 – 5, reconstructed in 1988.

**Commissariat building** – A two-storey stone building, built as a storehouse for the headquarters of the canal, 1826. CRM1.

**Lockstation office** – A one-storey stone building, 1884. CRM2.

**Archaeological features** – Stabilized remains of the Royal Engineers' building, 1827. CRM1.

## Ottawa Lockstation to Hartwells Lockstation

### 0,5 km – 6,7 km

Connecting Ottawa and Hartwells lockstations is a 6,4-km excavated channel of varying width; it is the longest excavated channel along the entire Rideau Canal. The channel is flanked on both sides by masonry or concrete walls, and railings. Before reaching Hartwells Lockstation, the channel passes through Dows Lake. Originally a swamp, this artificial lake was created through the construction of two earth embankment dams to contain its waters.

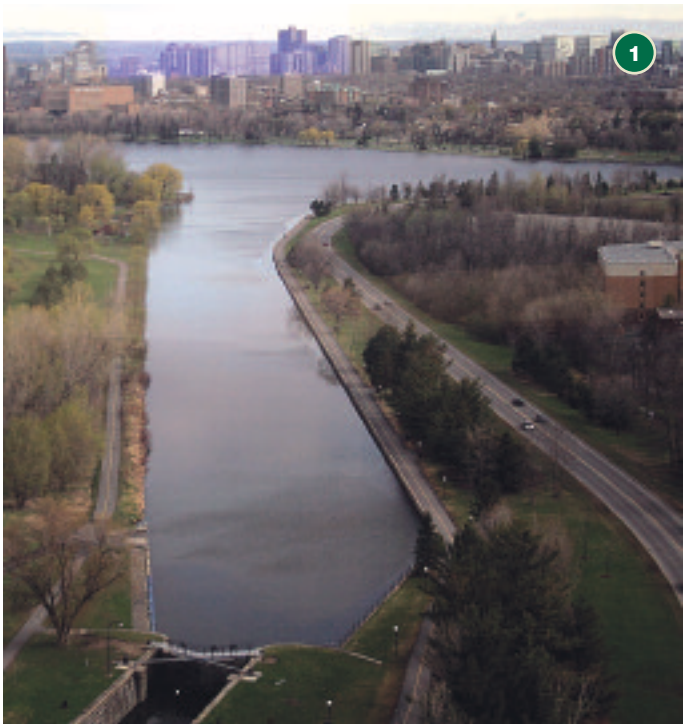



*Image 1* *View of the excavated channel from Dows Lake to Hartwells Lockstation.*

*Image 2* *The start of the excavated channel leaving Ottawa locks. Many bridges have been built across the canal since its completion in 1832.*

# Hartwells Lockstation

## 6,7 km – 6,9 km

Hartwells Lockstation consists of a flight of two locks set into the flank of a rise of ground. It is on the excavated channel, approximately halfway between Dows Lake and Mooneys Bay.


*Image 1* *The defensible lockmaster's house at Hartwells, with the waste sluice tunnel in the foreground.*

*Image 2* *Two locks in flight are situated in the excavated channel. There is no dam, but a sluice that allows excess water to bypass the locks is visible in the lower right of the photograph.*

### *Cultural Resources*

**Two locks** – Manually operated locks in flight, each with a lift of 3,4 m, 1830. CRM1.

**Defensible lockmaster's house** – A single-storey stone house, 1841. A second storey was added in 1905. CRM1.

**Storehouse** – A frame one-and-a-half-storey building, 1937. CRM2.

**Lockman's house** – A frame one-and-a-half storey building, 1920. FHB.

**Stoplog weir** – A reinforced concrete structure, 1904.

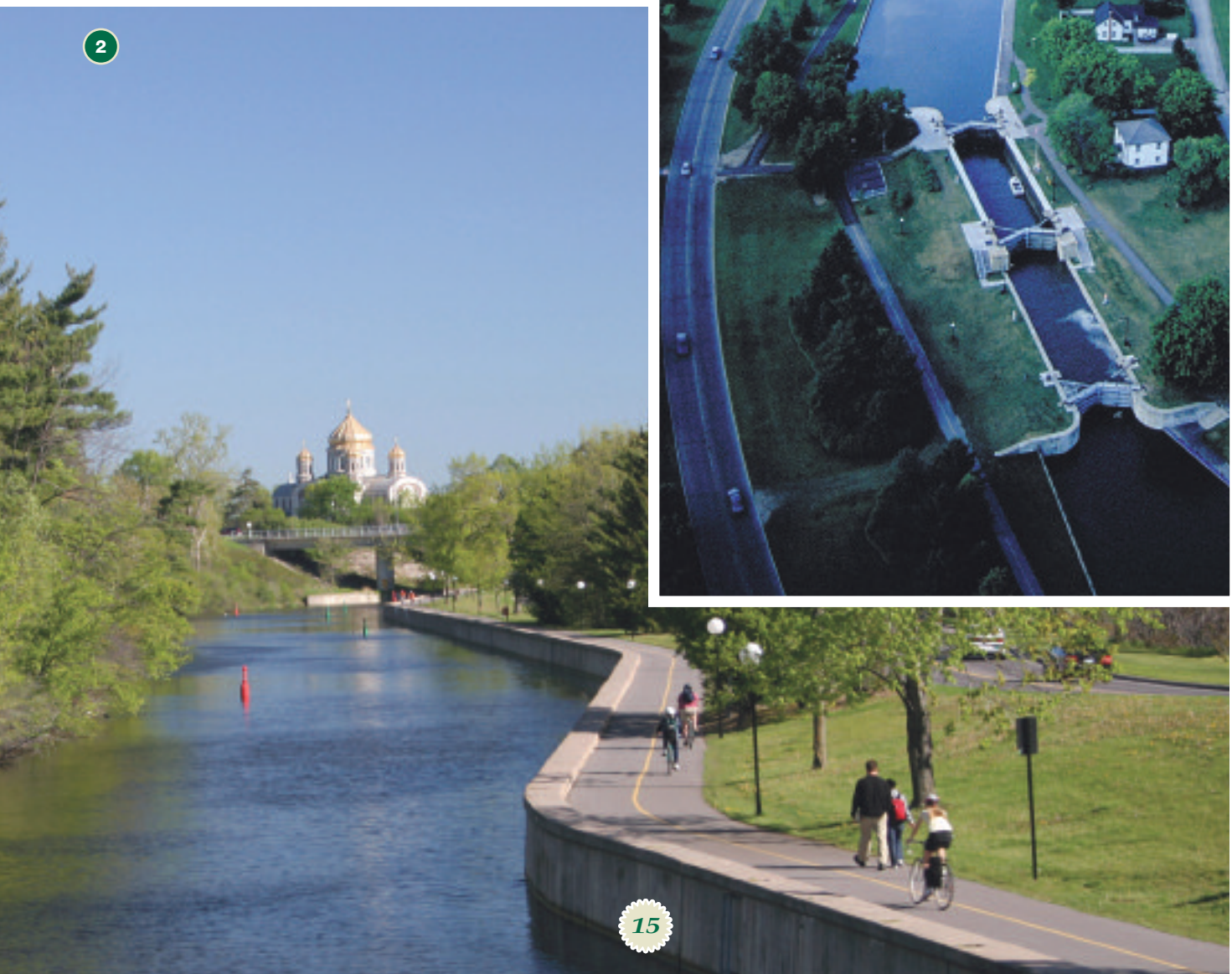
## Hartwells Lockstation to Hogs Back Lockstation

### 6,9 km – 8,4 km

Hartwells and Hogs Back lockstations are connected by a 1,5-km excavated channel. An interesting feature is the 1830 turning basin, located on the west side of the channel, immediately south of Hartwells Lockstation.


*Image 1* *An aerial view showing the excavated channel leading to Hogs Back Lockstation and the turning basin just beyond the locks at Hartwells.*

*Image 2* *The final stretch of the excavated channel as seen from Hogs Back Lockstation looking north.*



# Hogs Back Lockstation

## 8,4 km – 8,6 km

Up to Hogs Back, the Rideau Canal is an artificial waterway of excavated channels and a drowned swamp, Dows Lake. Hogs Back Lockstation marks the transition from excavated channel to the Rideau River. Access to the river was made possible by the damming of Hogs Back Falls. This resulted in the raising of the level of the river to create a slackwater section that boats entered after passing through the two locks. An earth embankment dam separates the locks and excavated channel from the natural river course and maintains the water level for navigation.


### *Cultural Resources*

**Two locks** – Manually operated locks in flight, with a combined lift of 4,4 m, 1830. CRM1.

**Earth embankment dam** – 98 m long, 1830. CRM1.

**Lockstation office** – A one-and-a-half-storey frame building, 1930. FHB.

**Storage shed** – A small frame structure, 1930. FHB.

*Image 1* *Hogs Back Lockstation marks the end of the excavated channels that began at the Ottawa Lockstation.*

*Image 2* *Hogs Back is the location of a spectacular set of waterfalls, which was bypassed by the excavated channel section. The Hogs Back locks were built to overcome the height of the falls.*

*Image 3* *Looking toward Hartwells from Hogs Back, the elevation rise can be clearly seen.*


## Hogs Back Lockstation to Black Rapids Lockstation

### 8,6 km – 15,0 km

The construction of the dam at Hogs Back created a 6,4-km slackwater section to Black Rapids Lockstation. Immediately south of the dam, the inundation created a broad expanse of water called Mooneys Bay.

*Image 1 The dams at Hogs Back created a large slackwater section of the Rideau River known as Mooneys Bay, a popular aquatic recreation area.*

# Black Rapids Lockstation

## 15,0 km – 15,1 km

Black Rapids Lockstation is located at a bend in the Rideau River, with the lock creating an island from which a spillway dam stretches across the river. This dam establishes a constant water level for navigation of an 8-km slackwater section, reaching to Long Island Lockstation. Two stoplog weirs facilitate adjustment of the water level of the upstream slackwater section.


*Image 1* *Black Rapids Lockstation. The weir and the start of the dam across the Rideau River are visible to the right of the photograph.*

## *Cultural Resources*

**One lock** – A single lock with a lift of 2,8 m, 1830. CRM1.

**Lockmaster's house** – A two-storey frame house, 1914. CRM2.

**Spillway dam** – A concrete structure consisting of three spillway sections and three piers, on the location of an earlier dam, 1950. CRM2.

**Weirs** – Two reinforced concrete stoplog weirs of one bay each, 1925 and 1950. CRM2.

*Image 2* *The building of the original dam caused many problems, and the dam was vulnerable to spring flooding. The present dam was built on the original site in 1950.*


*Image 3* *The lock was originally manually operated, but was electrified in 1969.*

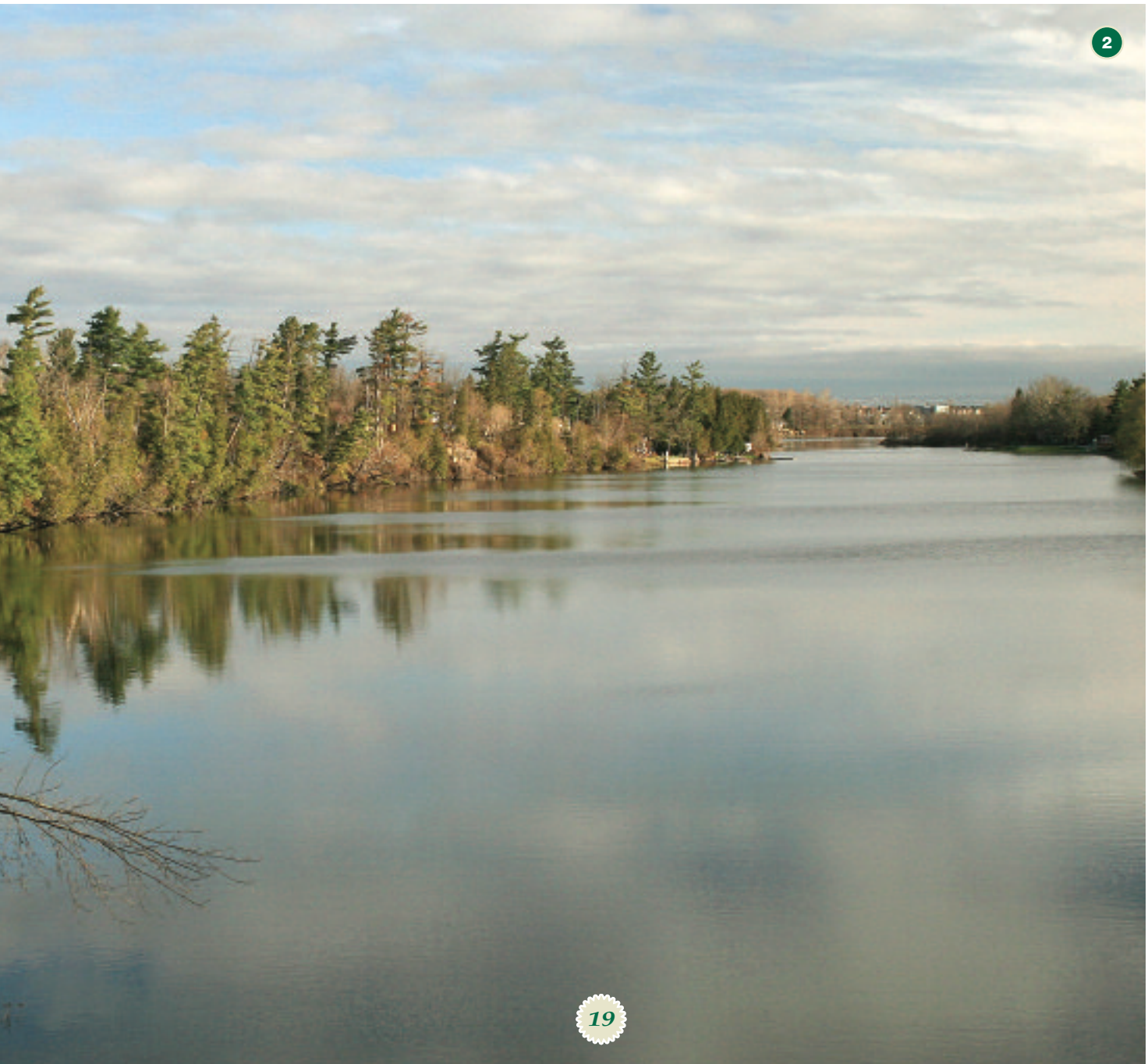
## Black Rapids Lockstation to Long Island Lockstation

### 15,1 km – 23,3 km

This 8,2-km slackwater section was created by the spillway dam at Black Rapids. In this slackwater section, the canal is bordered by wetlands, including the Chapman Mills Conservation Area.


*Image 1* *The spillway dam at Black Rapids created a broad slackwater section of the Rideau River stretching from Black Rapids to Long Island.*

*Image 2* *Looking north from Long Island Lockstation toward Black Rapids. Wooded shores and wetlands characterize this slackwater section.*



# Long Island Lockstation

## 23,3 km – 23,7 km

At this point, the river forms two channels separated by Nicolls Island and Long Island. The Long Island Lockstation is located on the east bank of the Rideau River at the southern tip of Nicolls Island. The three locks in flight are attached to an impressive stone arch dam that spans the eastern river channel to Nicolls Island. The western river channel is controlled by a dam at Manotick, 3 km to the south. Water levels are further controlled by a weir from Nicholls Island to Long Island. Together, these dams created a 40,7-km slackwater section known as 'The Long Reach'.



### *Cultural Resources*

**Three locks** – Three manually operated locks in flight, with a combined lift of 7,7 m, 1830. CRM1.

**Stone arch dam** – The dam is 9,7 m high and 76,2 m wide, 1830. CRM1.

**Manotick Dam** – A concrete water control dam, 1920. CRM2.

**Lockmaster's house** – A two-storey frame house now used for administrative purposes, 1915. CRM2.

**Swing bridge** – A pony-truss swing bridge, 1903. CRM2.

*Image 1* *The dams at Long Island Lockstation significantly changed the natural course of the Rideau River. The stone arch dam (lower right) is wide enough to accommodate a public roadway to Nicholls Island.*

*Image 2* *The sweeping curve of the stone arch dam reveals the workmanship of the canal's builders.*

*Image 3* *A manually operated swing bridge, built in 1904, carries the road over the locks.*

## Long Island Lockstation to Burritts Rapids Lockstation

### 23,7 km – 64,4 km

Known as 'The Long Reach', this 40,7-km slackwater section is the longest uninterrupted navigable stretch of the canal. The width of the canal varies from narrow channel to a wide river. South of Kars, at 'The Big Bend', the Rideau changes its orientation from north-south to east-west and is bordered by wetlands. Two conservation areas, Baxter and W.A. Taylor, and Rideau River Provincial Park, are along the shores of this section of the canal.


*Image 1* *Aerial view of 'The Long Reach' created by the dams at Long Island as it passes through the town of Manotick.*

*Image 2* *South of the village of Kars, 'The Long Reach" is of considerable width and has extensive wetlands.*

# Burritts Rapids Lockstation

## 64,4 km – 66,9 km

Burritts Rapids Lockstation is located at the eastern end of 'The Long Reach'. At this location, the natural river formed a long chain of rapids. To bypass these, it was necessary to excavate a 2,5-km channel. As a result, a long narrow island was created, which is now the site of the historic village of Burritts Rapids (population 400). At the western tip of the island, a spillway dam and weir span the river channel, creating a slackwater section to Nicholsons Lockstation.


*Image 1* *Burritts Rapids lock is at the east end of a long excavated channel built to bypass a set of shallows and rapids, now inundated by 'The Long Reach' slackwater section.*

*Image 2* *The upper approach to Burritts Rapids lock. Recreational use of the canal includes an increasing number of paddlers.*

## *Cultural Resources*

**One lock** – One manually operated lock with a lift of 2,7 m, 1830. CRM1.

**Spillway dam** – A reinforced concrete structure measuring 63,4 m in length, 1951. CRM2.

**Weir** – A weir with two bays, 1930. CRM2.

**Swing bridge** – A manually operated unequal arm, through-truss steel bridge supported on masonry abutments, 1897. CRM2.

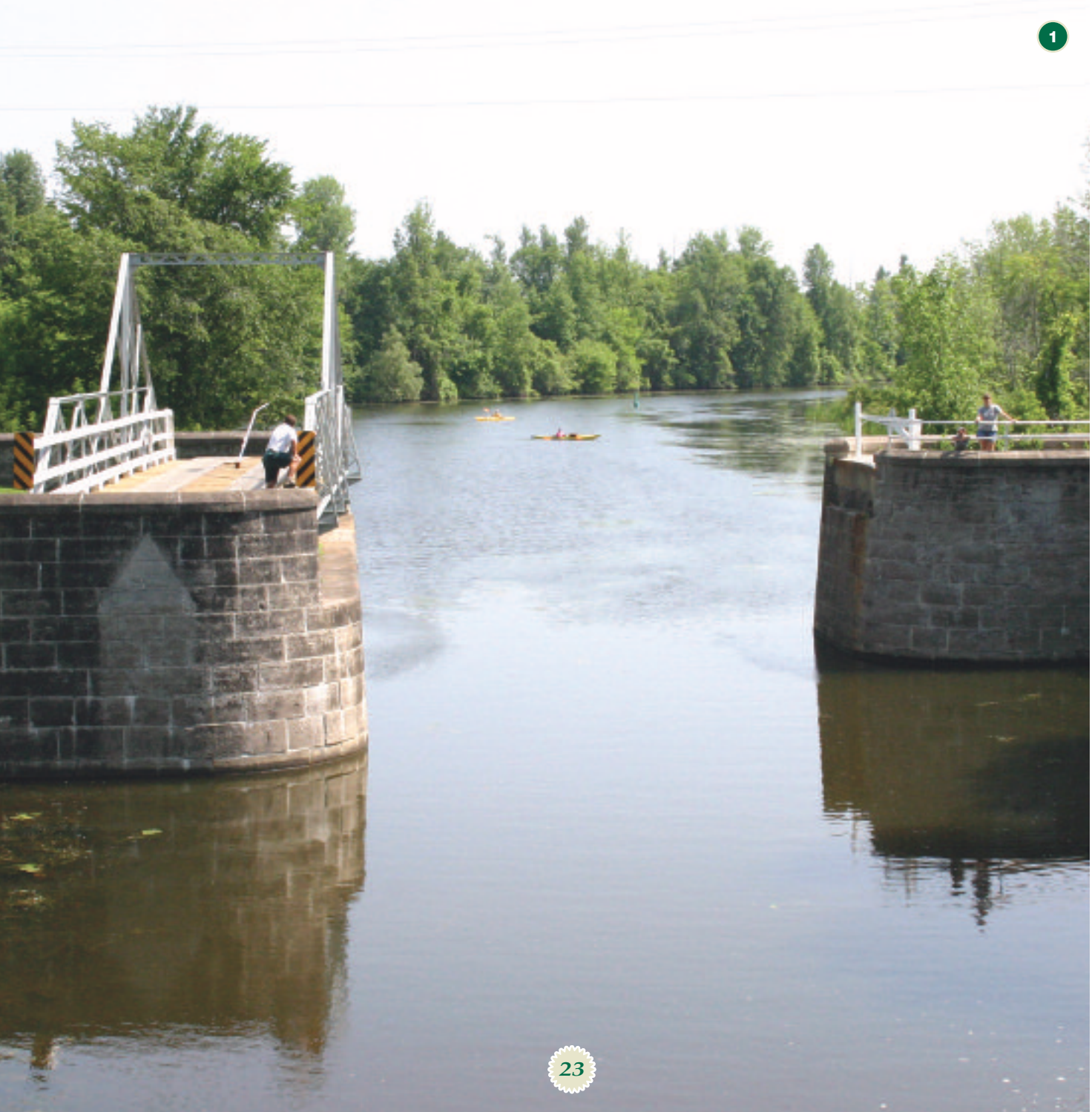
**Dam ruins** – The remnants of the original dam, immediately downstream from the spillway dam. CRM2.

## Burritts Rapids Lockstation to Nicholsons Lockstation
### (Upper and Lower)

**66,9 km – 69,4 km**

A 2,5-km slackwater section of varying width, created by the spillway dam at Burritts Rapids.

*Image 1 Vessels sailing to Lower Nicholsons pass between the impressive stone abutments of the manually operated swing bridge at the Burritts Rapids Lockstation.*



# Nicholsons Lockstation
## (Upper and Lower)

### 69,4 km – 70,2 km

At Nicholsons, the lower lock and the upper lock are in an excavated channel that bypasses the river's rapids and shallows. The lower lock is at the eastern entrance of the channel, and the upper lock is located near its middle. The Nicholsons spillway dam crosses the river at the western tip of the narrow island between the excavated channel and the river and creates a slackwater section to Clowes Lockstation.


## *Cultural Resources*

**Two locks** – Two manually operated locks, with a combined lift of 4,4 m, 385 m apart along the excavated channel, 1830. CRM1.

**Excavated channel** – An 800-m excavated channel, 1830. CRM1.

**Spillway dam** – A masonry dam 76 m long and 2,5 m high, 1830. CRM1.

**Weir** – A stoplog weir with one bay, 1910. CRM2.

**Defensible lockmaster's house** – A one-storey stone building, 1838, with a frame second storey added in 1900. CRM1.

**Swing bridge** – An authentic replacement of the original timber king post swing bridge.

*Image 1 Nicholsons Lockstation includes two locks separated by an excavated channel, a unique configuration on the canal.*

*Image 2 Two manual operating winches. The winch on the left is used to raise and lower the sluice gate in the lock chamber. The other winch is used to open and close the lock gate.*

*Image 3 The king post swing bridge, which is balanced on a pintle and pushed by hand, carries a local road over the lock.*


## Nicholsons Lockstation to Clowes Lockstation

### 69,8 km – 70,5 km

A short slackwater section was created by the spillway dam at Nicholsons. It is the only place on the canal where the design of the slackwater system and locks required a vessel to cross against the current to reach a lock on the opposite bank of the river.


*Image 1* *The Nicholsons excavated channel and the beginning of the slackwater section leading to Clowes Lockstation.*

*Image 2* *The navigation channel west of the upper lock at Nicholsons leads to a slackwater section and crosses the river below the Clowes dam.*

# Clowes Lockstation

## 70,5 km – 70,6 km

Clowes Lockstation is located on the north side of the Rideau River. The lock is built into the bank, creating a narrow island from which the stone arch spillway dam spans the river, creating a slackwater section between Clowes and Merrickville Lockstation.


*Image 1* *Clowes Lockstation, showing the spillway dam and weir stretching across the river.*

*Image 2* *The lower gates pinned open for the winter months with the stoplog weir to the left.*

## *Cultural Resources*

**One lock** – A manually operated lock with a lift of 2,4 m, 1830. CRM1.

**Stone arch spillway dam** – A dam, 151 m long and 4,45 m high, 1830. CRM1.

**Weir** – A stoplog weir made of reinforced concrete with one bay, late 19th century. CRM2.

**Defensible lockmaster's house** – A one-storey stone house, 1838, with a frame extension, 1890. CRM1.

## Clowes Lockstation to Merrickville Lockstation

### 70,6 km – 73,8 km

A 3,2-km slackwater section of river created by the construction of the spillway dam at Clowes Lockstation.

*Image 1* *The slackwater section from Clowes as it approaches Merrickville Lockstation.*

*Image 2* *An elevated railway bridge crosses this wide slackwater section of the Rideau River.*


# Merrickville Lockstation

## 73,8 km – 74,8 km

Merrickville Lockstation is in the historic village of Merrickville (population 1 000). The locks are located along the south side of the river in an excavated channel, 1 km long. A concrete dam runs the full width of the river, creating a slackwater section to Kilmarnock Lockstation. Two river channels, flowing from the water control weirs in the dam, create an island, which is the site of the Merrickville Industrial Complex.


### *Cultural Resources*

**Three locks** – Three manually operated locks separated by two basins, with a combined lift of 7,4 m, 1830. CRM1.

**Original dam** – Remnants of the original stone masonry dam are still visible, 1830. CRM1.

**Water control dams and weirs** – A series of dams and weirs spanning the river, which provide for present-day water control.

**Lower and upper basins** – Large turning basins between the locks, 1830. CRM1.

**Blockhouse** – A two-storey building, the ground floor is stone, the second, frame, 1832. CRM1.

**Storehouse** – A frame, one-storey building, known as 'The Depot', 1900. CRM2.

**Merrickville Industrial Complex** – An intact foundry and stabilized ruins of a woollen mill, 19th century. CRM2.

*Image 1 This aerial view of Merrickville shows the separation of the three locks by two large basins, a unique configuration. Commercial vessels could moor in the basins while waiting to be loaded.*

*Image 2 'The Depot', originally a storehouse, is used as an interpretive centre.*



*Image 3* *A swing bridge crosses the upper lock, which is separated by a turning basin from the middle lock. The lockstation office is in the background.*

*Image 4* *Merrickville's blockhouse was the largest built along the canal. It is a national historic site of Canada.*

*Image 5* *The stabilized ruins of a woollen mill. In the mid-19th century, Merrickville was an important industrial community.*

## Merrickville Lockstation to Kilmarnock Lockstation

### 74,8 km – 86,7 km

An extensive slackwater section created by the construction of the original dam at Merrickville, and maintained by the present-day dams. There are classified wetlands throughout the section and a federal government bird sanctuary west of Merrickville.


*Image 1* *Passing along the excavated channel above Merrickville locks, the canal enters an extensive slackwater section stretching to Kilmarnock.*

*Image 2* *A view of part of the extensive wetlands along this section of the Rideau River. The lower gate of Kilmarnock lock is in the foreground.*

## Kilmarnock Lockstation

### 86,7 km – 87,1 km

This lockstation is situated in the middle of large wetlands created by the construction of the dam at Merrickville. The lock is located in a 400-m excavated channel on the south bank of the river. A 300-m earth embankment dam, built to maintain the water levels on the reach to Edmonds Lockstation, spans the river, with a water control weir located at its northern end.


### *Cultural Resources*

**One lock** – A manually operated lock with a lift of 0,6 m, 1830. CRM1.

**Earth embankment dam** – A dam, 300 m long, 1830. CRM 1.

**Defensible lockmaster's house** – A one-storey stone building, 1841, with a second-storey stone addition, 1889. CRM1.

**Swing bridge** – An authentic replacement timber king post swing bridge.

*Image 1* *At Kilmarnock Lockstation, the lock is set along a short excavated channel. The dam at Kilmarnock created a large slackwater section stretching to Edmonds Lockstation.*

*Image 2* *A king post swing bridge spans the lock and carries a county road across the canal excavation.*

# Kilmarnock Lockstation to Edmonds Lockstation

## 87,1 km – 92,7 km

This is a 5,6-km slackwater section of varying width, created by the construction of the dam at Kilmarnock Lockstation. This section has extensive wetlands along its length.


*Image 1* *The slackwater section from Kilmarnock to Edmonds begins with a lake-like area of open water through which passes the narrow, winding navigation channel.*

*Image 2* *Extensive wetlands are a prominent feature of this section of the Rideau River.*

*Image 3* *The approach to Edmonds presents an impressive panoramic view of the lock entrance and the stone arch spillway dam.*


## Edmonds Lockstation

### 92,7 km – 92,9 km

The lock at Edmonds Lockstation is situated at the east end of a 150-m excavated channel on the south side of the river. A spillway dam with a stone masonry weir spans the river at the western tip of the narrow island creating a slackwater section to Old Slys Lockstation. The excavated stone visible in the earthen dam on the upper excavated channel shows the technique used to build such dams.


### *Cultural Resources*

**One lock** – A manually operated lock with a lift of 2,6 m, 1830. CRM1.

**Stone arch dam** – A dam, 122 m long and 4,08 m high, 1830. CRM1.

**Weir** – A stone one-bay stoplog weir, 1830. CRM1.

**Earth embankment dam** – A 100-m earth and stone dam that retains the water in the upper channel, 1830. CRM1.

**Lockstation office** – A storey-and-a-half frame building, 1905. CRM2.

*Image 1* *At Edmonds Lockstation, the lock is set at the end of a short excavated channel that bypasses the shallow rapids.*

*Image 2* *The sweeping curve of the stone arch dam demonstrates the techniques of the engineers and builders. 'Splash boards', seen here, were affixed to the dam to create greater navigation depths.*

*Image 3* *The lock chamber and upper gate at Edmonds with the spillway dam and weir visible to the right. The frame building is typical of operational buildings of the late nineteenth and early twentieth centuries.*


## Edmonds Lockstation to Old Slys Lockstation

### 92,8 km – 95,0 km

This is a 2,6-km slackwater section created by the construction of the stone arch dam at Edmonds Lockstation. There are wetlands along the shore.


*Image 1* *After the slackwater section above Edmonds, the approach to Old Slys Lockstation is by way of a short excavated channel.*

*Image 2* *When leaving Edmonds on the way to Old Slys through the upper excavated channel, the stone tailings from the original excavation can still be seen along the banks.*

## Old Slys Lockstation

### 95,0 km – 95,4 km

Old Slys Lockstation is located on the north side of the Rideau River, with the locks at the western end of a 400-m excavated channel. A stone arch dam across the river creates a slackwater section between Old Slys and Smiths Falls Combined Lockstation. A water control weir is located at the south end of the dam.

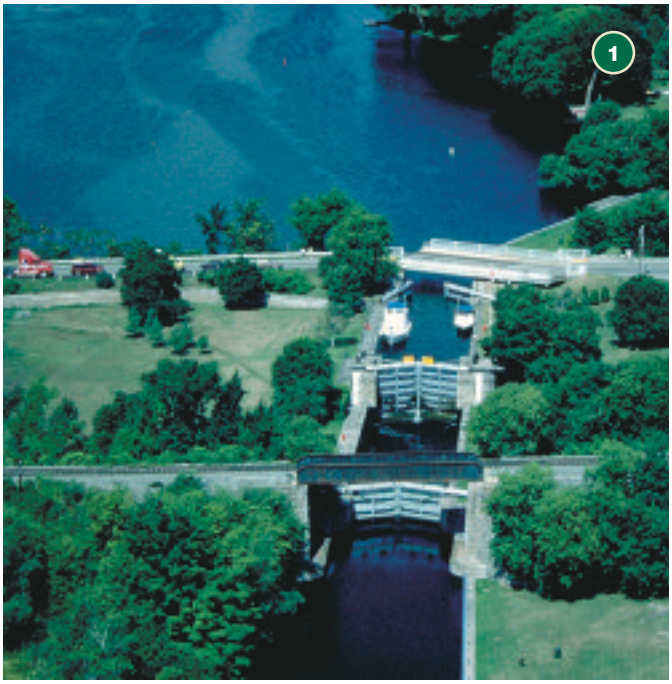



*Image 1* *Because a series of locks was required to overcome the falls and rapids at Smiths Falls, the canal starts its ascent at Old Slys, through two locks placed at the end of an excavated channel.*

*Image 2* *The defensible lockmaster's house has been conserved in its original 1838 form. Many others had a second storey added.*

*Image 3* *A view of the two locks at Old Slys with a high-level railway bridge in the background.*

### *Cultural Resources*

**Two locks** – Two manually operated locks in flight with a combined lift of 5 m, 1830. CRM1.

**Stone arch dam** – A stone arch dam, 61 m long and 6,4 m high, 1830. CRM1.

**Defensible lockmaster's house** – A one-storey stone structure, 1838. CRM1.

## Old Slys Lockstation to Smiths Falls Combined Lockstation

### 95,4 km – 96,6 km

Known as the 'Smiths Falls Lower Reach', this 1,2-km slackwater section of the canal was created by construction of the stone arch dam at Old Slys.


*Image 1* *The slackwater section above Old Slys is known as 'Smiths Falls Lower Reach'.*

*Image 2* *Despite the construction of many dams in Smiths Falls, the wild nature of the river is still evident.*

## Smiths Falls Combined Lockstation

### 96,6 km – 96,8 km

Smiths Falls Combined Lockstation consists of the three original locks, which were taken out of service in 1974, and a single replacement hydraulic lock. The original locks are located on the south side of the river and the new lock is located about 10 m to their north. This location at Smiths Falls underwent significant engineering modification during the construction of the canal. The original course of the river was blocked with a stone arch dam, which is located on the north shore of the river, and an entirely new river channel was established.


## *Cultural Resources*

**Three original locks** – The flight of three locks has a combined lift of 7,9 m, 1830. CRM1.

**Replacement single chamber lock** – A hydraulic/electric concrete lock with a lift of 7,9 m, 1974.

**Stone arch dam** – The stone arch dam is 91,44 m long and 7 m high, 1830. CRM1.

**Defensible lockmaster's house** – A one-storey stone building, 1841. A frame second storey was added in 1900. CRM1.

**Canalman's house** – A frame two-storey building, built as living quarters for canal operators, 1953. FHB.

**Storage shed** – A long frame structure, 1935. FHB.

*Image 1* *Smiths Falls Combined Lockstation is a complex site that has been adapted to modern needs. The construction of a high level road bridge led to the closure of the original three locks in flight (on the left) and the installation of a single modern lock (to the right).*

*Image 2* *A second storey and an addition were added to the defensible lockmaster's house. It now serves as offices for conservation organizations.*

*Image 3* *The first of the three original locks; the river beyond leads to Old Slys. The building in the foreground served as living quarters for canal workers and the long shed was used for boat storage.*

## Smiths Falls Combined Lockstation to Detached Lockstation

### 96,8 km – 97,1 km

This section of the canal is a large elongated basin created by the construction of the stone arch dam associated with Combined Lockstation.

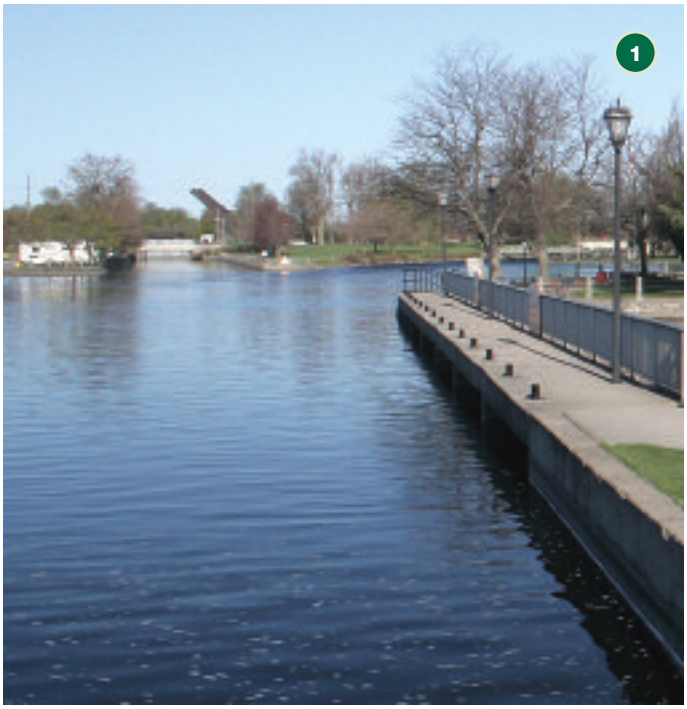



*Image 1* *A short slackwater section leads from Smiths Falls Combined to the excavated channel and Detached Lockstation. The walkway on the right crosses a dam. The river branches off to the right.*

*Image 2* *Looking west to Detached Lockstation from the conserved flight of three locks. A timber coffer dam prevents the water from flooding the original stone masonry locks.*

# Smiths Falls Detached Lockstation

## 97,1 km – 97,4 km

Smiths Falls Detached Lockstation is located on the south side of the river and is at the west end of a 300-m excavated channel. A concrete stoplog weir crosses the river, creating a slackwater section to Poonamalie Lockstation. A prominent feature just to the west of Smiths Falls Detached is the Sherzer Rolling Bascule Bridge. This historic railway bridge is a national historic site of Canada. It is, however, not included in the property because the Parks Canada Agency does not own it.


## *Cultural Resources*

**One lock** – A manually operated lock with a lift of 2,4 m, 1830. CRM1.

**Storehouse** – A two-storey frame building, now the lockstation office, 1935. CRM2.

*Image 1* *At Detached Lockstation, both a road and railway cross the canal. A swing bridge carries the road across the excavated channel.*

*Image 2* *The turning basin, just upstream from the lock, is today a busy boat harbour. Originally it served commercial and military vessels.*

*Image 3* *The lock chamber at Detached Lockstation, dewatered in the spring, with the lockstation office to the left. In the background, the massive Scherzer Rolling Bascule Bridge, now a national historic site of Canada, allowed for vessels to pass under the railway.*

## Smiths Falls Detached to Poonamalie Lockstation

### 97,4 km – 102,2 km

'The Swale', a slackwater section of the Rideau River, was a result of the construction of the dam at Detached Lockstation.


*Image 1* *For much of the distance between Smiths Falls Detached and Poonamalie, the slackwater section is an important wetland area, 'The Swale'.*

*Image 2* *From the Swale, access to Poonamalie, named by soldiers for a duty station in India, is by way of an excavated channel.*

# Poonamalie Lockstation

## 102,2 km – 104,7 km

The lock at the Poonamalie Lockstation is located mid-way along a 2,5-km excavated channel, which bypasses the rapids and shallows of the river. There is a series of earth embankment dams along the upper channel that, in combination with a water control dam, create the slackwater section known as Lower Rideau Lake and Big Rideau Lake. This important water control dam has been equipped with an electric mechanical gate to deal with the high volumes of outflow from the chain of Rideau Lakes.


### *Cultural Resources*

**One lock** – A manually operated lock with a lift of 1,6 m, 1830. CRM1.

**Earth embankment dams** – Three earth dams were built at the time of the lock's construction, 1830. CRM1.

**Defensible lockmaster's house** – A one-storey stone house, built in 1841, with a second storey added in 1910. CRM1.

*Image 1* *This aerial view of Poonamalie Lockstation, built in a long excavated channel, shows the expanse of Lower Rideau Lake, a slackwater created by the dam at Poonamalie.*

*Image 2* *The lock and buildings create a picturesque setting.*

## Poonamalie Lockstation to The Narrows Lockstation

### 104,7 km – 132,4 km

The dams constructed at Poonamalie Lockstation to control the level of the Rideau Lakes resulted in substantial flooding of Lower Rideau Lake, creating areas of wetlands, bogs and marshes. Rideau Ferry, an historic crossing point, is at the entrance to Big Rideau Lake, the largest waterbody on the system. Murphy's Point Provincial Park and three conservation areas, Rideau Ferry, Mill Pond, and Portland Bay, are located on the shores of this section of the canal.

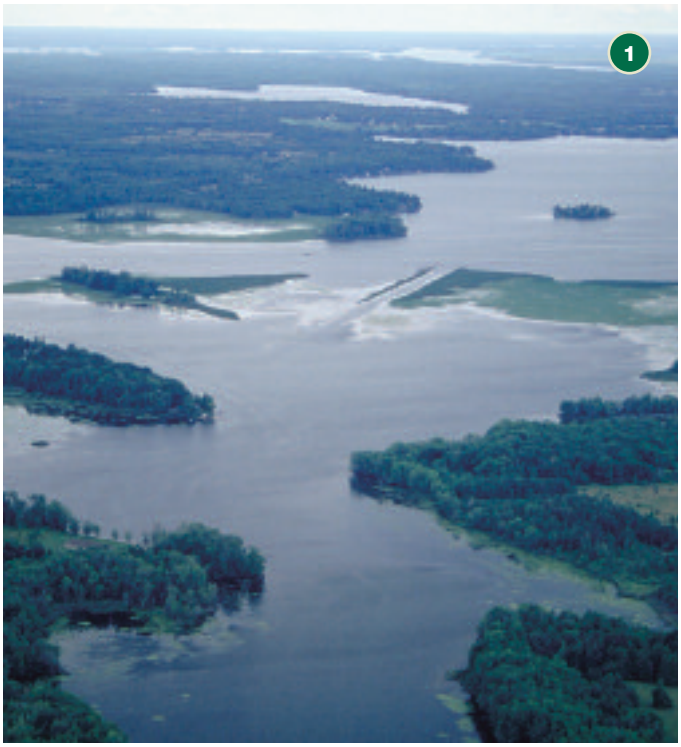



*Image 1* *The Rideau lakes were deepened and widened by the construction of dams at Poonamalie.*

*Image 2* *After the lock at Poonamalie, the excavated channel leads to Lower and Upper Rideau lakes, 30 km of open water.*

# Beveridges Lockstation, Tay Canal

## At 110,7 km on the Rideau Canal

Beveridges Lockstation, located on the north shore of Lower Rideau Lake, 2 km east of Rideau Ferry, is the entrance to the Tay Canal. The canal runs north to the town of Perth (population 6 000). The lockstation includes a 2-km excavated channel that connects Beveridges Bay, on Lower Rideau Lake, to the Tay River. The two locks are 500 m apart. There is an earth embankment dam and weir across the Tay River, near the northern end of the excavated channel. This creates a slackwater section navigable to Perth, a distance of 9,8 km.


### *Cultural Resources*

**Two locks** – Two manually operated locks with a combined lift of 7,7 m, separated by a 500-m excavated channel. They were built with the same dimensions, material and operating mechanisms as the original Rideau Canal locks, 1887. CRM2.

**Earth embankment dam** – A dam with a clay puddle core, 500 m long, 1887. CRM2.

**Lockmaster's house** – A large frame two-storey house, 1883. CRM2.

*Image 1 For most of its length, the Tay Canal is a slackwater watercourse. The two locks of the Tay Canal were built on an excavated channel.*

*Image 2 Upper Beveridges Lockstation Office. It is similar to Rideau Canal buildings of the same period.*

## Perth, Tay Canal

### At 110,7 km on the Rideau Canal

The Tay Canal branch of the Rideau Canal extends from Beveridges Lockstation to the town of Perth. The canal ends in the middle of the town at a large turning basin lined with timber crib wharves. The Tay Canal passes through the extensive Tay marshes.


*Image 1 The end of the excavated channel that links with the Tay Marsh.*

### *Cultural Resources*

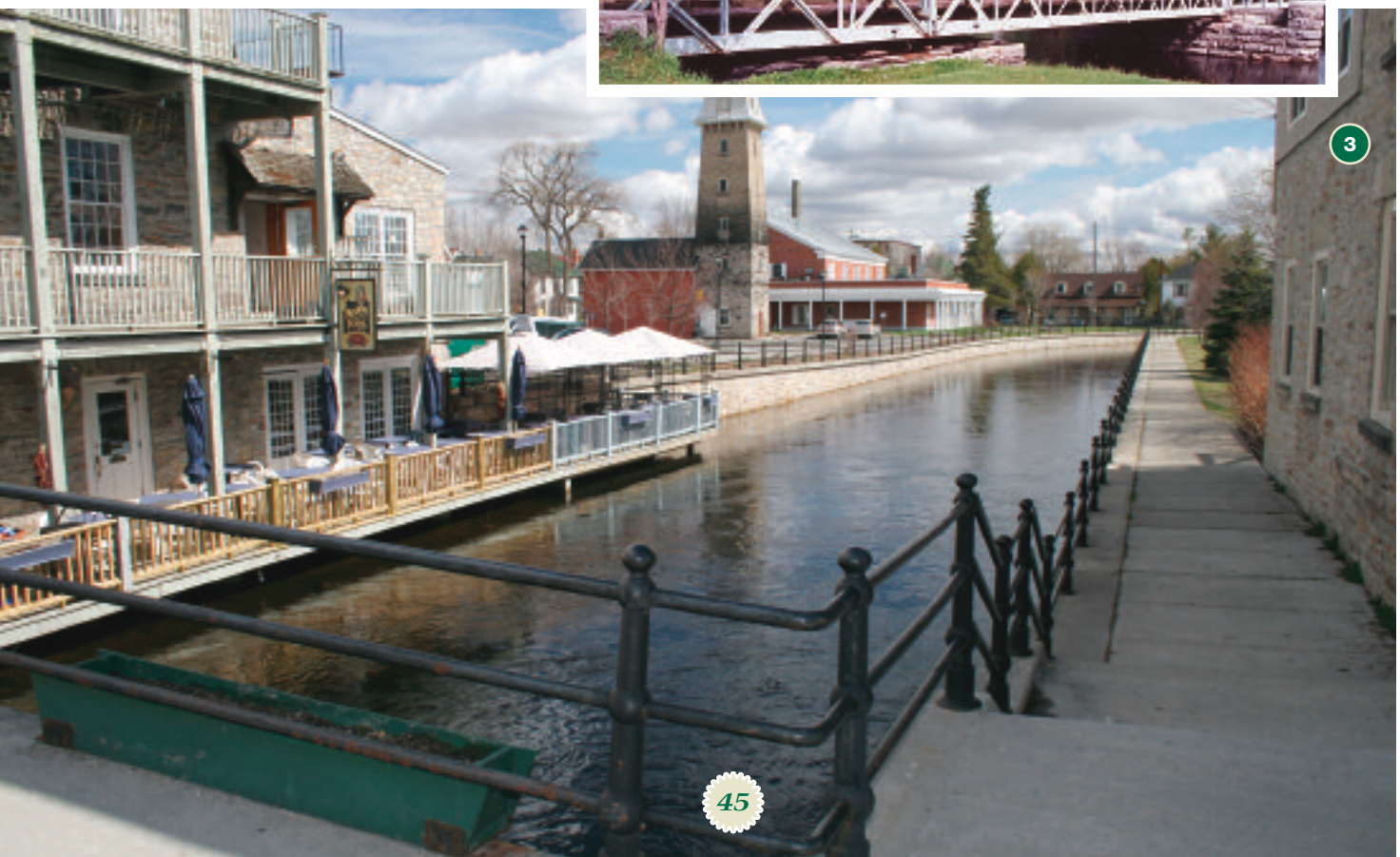
**Bridge** – A king post swing bridge, 1888. CRM2.

**Bridgeman's house** – A frame one-and-a-half-storey house, 1890. CRM2.

**Turning Basin** – A basin, approximately 75 m by 110 m, 1890. CRM2.

*Image 2 A small, frame house was occupied by the bridgeman responsible for the swing bridge in Perth.*


*Image 3 The large turning basin at Perth marks the end of the Tay Canal.*



# The Narrows Lockstation

## 132,4 km – 132,5 km

Prior to canal construction, Big Rideau Lake and Upper Rideau Lake formed a single body of water. Upper Rideau Lake was created by the construction of an earth embankment dam at a shallow, narrow location on the original waterbody. A single lock was built at the north end of the embankment to connect the two lakes. A weir is located at the south end to control water flows.


## *Cultural Resources*

**One lock** – A manually operated lock with a lift of 1,5 m, 1830. CRM1.

**Earth embankment dam** – An earth embankment dam, 400-m long, 1830. CRM1.

**Blockhouse** – A two-storey building, the ground floor is stone, the second, frame, 1833. CRM1.

**Swing bridge** – A manually operated unequal arm, through-truss steel bridge, 1898. CRM2.

*Image 1 The Narrows Lockstation was built at a point where the the Rideau Lake narrowed to a width of about 45 m. The dam created a second lake, Upper Rideau, the summit of the canal.*

*Image 2 Although the lock has one of the lowest lifts on the canal system, its construction was a significant engineering decision, saving money and time in construction at Newboro, located at the opposite end of the lake.*

*Image 3 The 1832 blockhouse at The Narrows was considerably altered in appearance over the years but was restored in the 1960s to its original appearance.*

*Image 4 The 1898 swing bridge carries a road across the lock. The bridge is operated by using hand-pushed sweeps.*

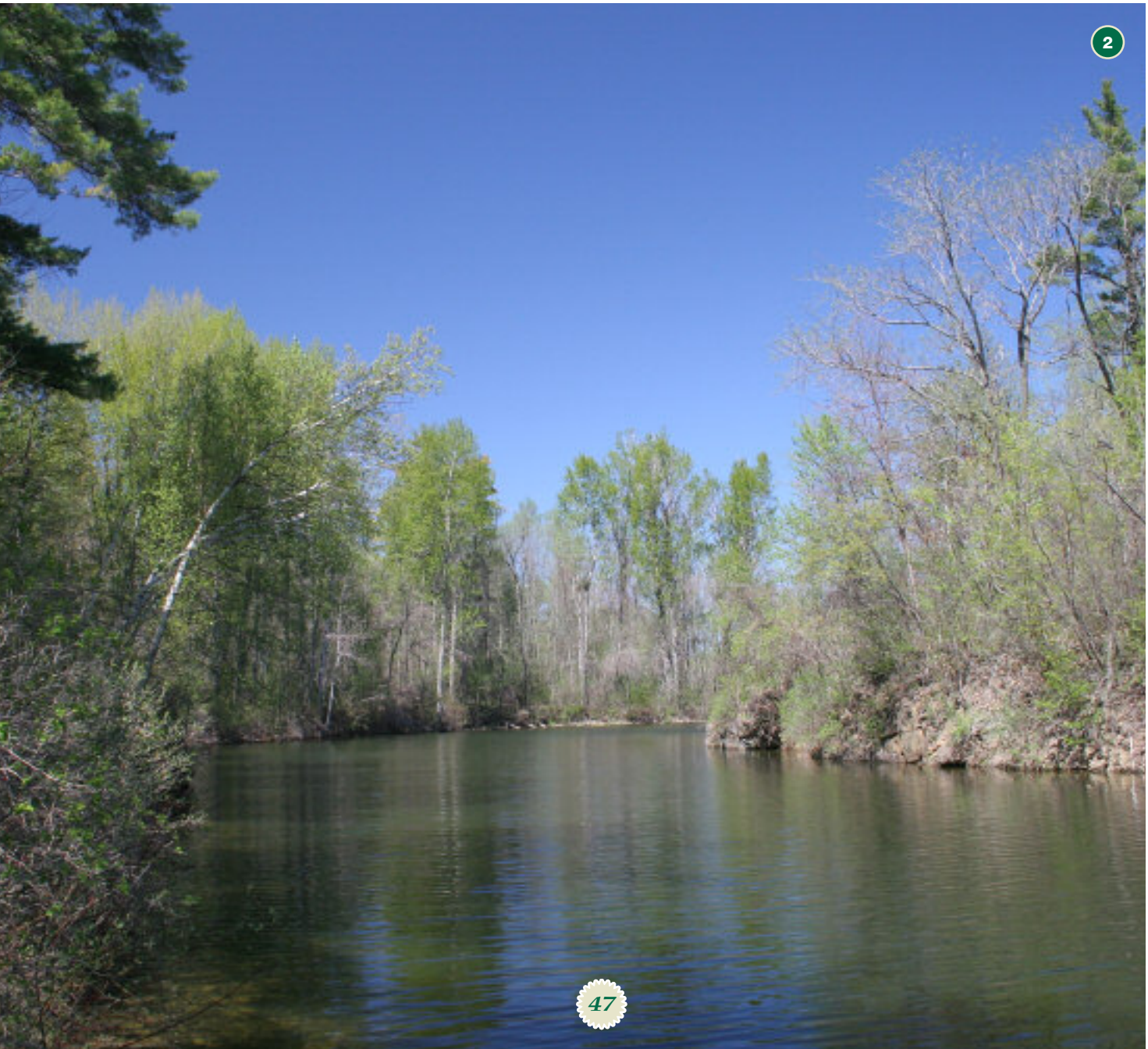
## The Narrows Lockstation to Newboro

### 132,5 km – 139,3 km

Upper Rideau Lake was created and substantially enlarged by dam construction at The Narrows Lockstation. New wetlands, bogs and marshes were also created. As a result of canal engineering, Upper Rideau Lake became the divide of two watersheds and the highest elevation on the Rideau Canal. From here waters flow north and south.


*Image 1* *The southern end of Upper Rideau Lake, where the canal crosses 'The Isthmus' and its descent to Kingston commences.*

*Image 2* *The flooding from the dam at The Narrows reduced the amount of excavation required to link the two watersheds. Nevertheless, digging the Newboro channel across the Isthmus was a daunting task.*



# Newboro Lockstation (The Isthmus)

## 139,3 km – 140,9 km

Newboro Lockstation is located at the south end of a narrow isthmus that separates Upper Rideau Lake and Newboro Lake. A 1,5-km channel was excavated through the isthmus to join the lakes, and a lock was located at its southern entrance.


*Image 1* *The Newboro lock is located at the southern end of the Newboro channel and provides entry into the Cataraqui watershed.*

*Image 2* *The operation of the Newboro lock was electrified in 1966, although the lock retains its original stone sloping walls.*

## Newboro Lockstation to Chaffeys Lockstation

### 140,9 km – 148,7 km

After Newboro Lockstation, the main navigation channel of the canal passes through six small slackwater lakes, including Newboro and Indian lakes, that were enlarged by the construction of a dam at Chaffeys Lockstation.


*Image 1* *In this section, the canal passes through a series of continuous lakes that were flooded by the dam at Chaffeys Lockstation.*

*Image 2* *The downstream exit from the excavated channel between Upper Rideau Lake and Newboro Lake.*

# Chaffeys Lockstation

## 148,7 km – 148,8 km

The access to Chaffeys Lockstation follows the natural course of the Cataraqui River, which was improved by excavation during construction. The lock and its excavated channel are on the south side of the river, with a dam and weir spanning the river on the north side of the site. The lock permits navigation between Indian Lake and Opinicon Lake.

*Image 1 Chaffeys Lockstation was built on a short excavated channel. The dam and weir create a rise of 3,1 m to establish navigable depths on the upstream lakes.*

## *Cultural Resources*

**One lock** – A manually operated lock with a lift of 3,1 m, 1830. CRM1.

**Defensible lockmaster's house** – A one-storey stone building, 1844, with a frame second storey added in 1894. CRM1.

**Lockstation office** – A two-storey frame building 1920. CRM2.

**Weir** – A reinforced concrete stoplog weir with two bays, 1920. CRM2.

*Image 2 A public road is carried over the lock on this plate girder swing bridge.*

*Image 3 The defensible lockmaster's house is now operated as a museum by a local heritage society.*

## Chaffeys Lockstation to Davis Lockstation

### 148,8 km – 152,0 km

This slackwater section, known as Opinicon Lake, was created by the construction of the dam at Davis Lockstation.


*Image 1* *Stumps from the virgin forests that were inundated by dam construction, are still evident on Opinicon Lake.*

*Image 2* *The excavated channel at Chaffeys Lockstation leads to Opinicon Lake, whose level was raised by the dam at Davis Lockstation.*

# Davis Lockstation

## 152,0 km – 152,1 km

Davis Lockstation is the most isolated of all the Rideau lockstations. The single lock is in a short excavated channel and established navigation between Opinicon Lake and Sand Lake. Earthen embankment dams and a single weir cross the river, establishing the slackwater section above it.


## *Cultural Resources*

**One lock** – A manually operated lock with a lift of 2,7 m. The lock was rebuilt in 1982 in its original position.

**Earth embankment dams** – Two earth embankment dams with combined length of 40 m, and height of 4,0 m, 1829. CRM1.

**Weir** – A reinforced concrete stoplog weir with one bay, 1920. CRM2.

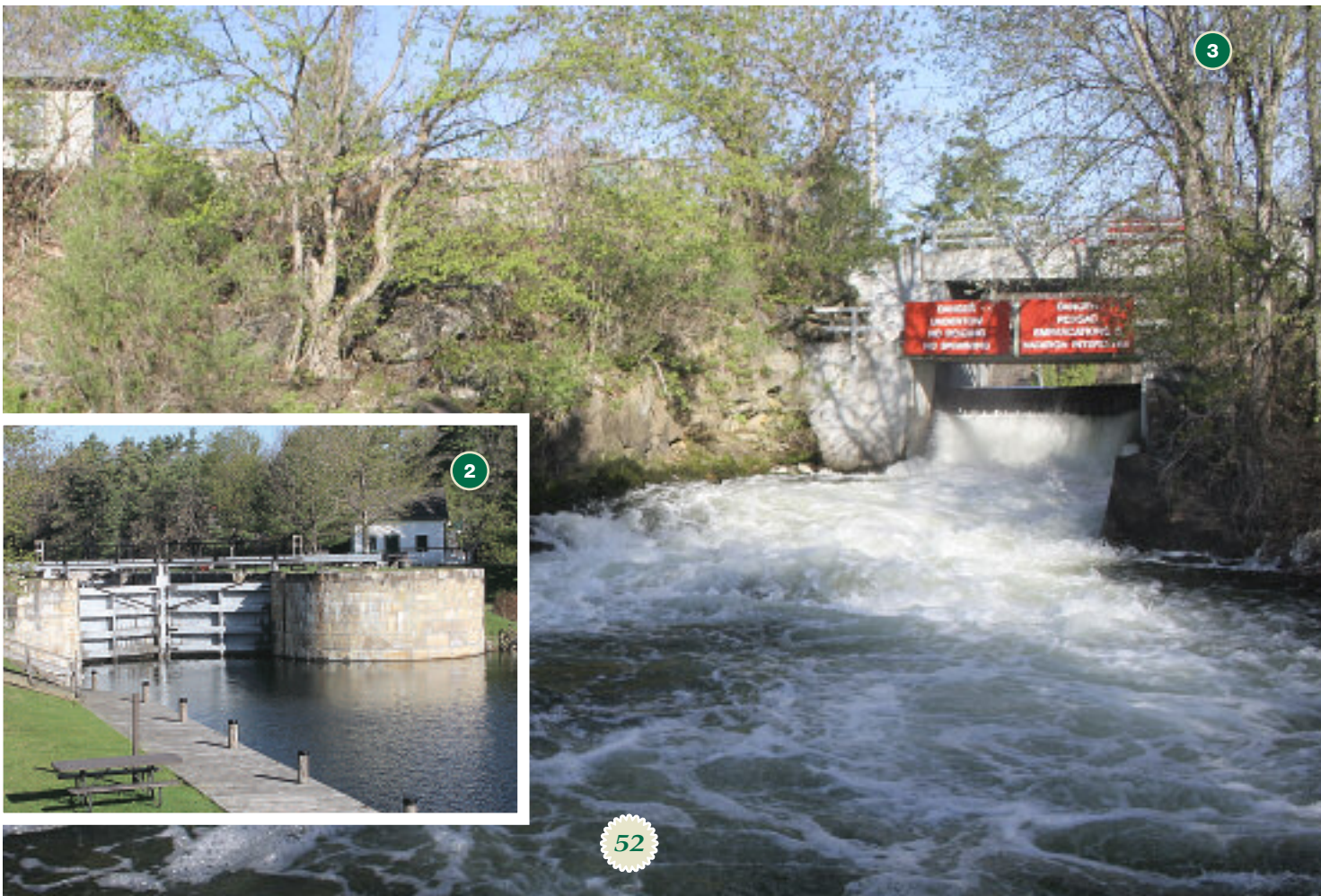
**Defensible lockmaster's house** – A one-storey stone building, 1842. A summer kitchen was added in 1898. CRM1.

**Lockstation office** – A two-storey frame structure, 1875. CRM2.

*Image 1 The Davis Lockstation was built in a narrow, natural river gorge that connected Opinicon Lake (bottom) and Sand Lake (top).*

*Image 2 The lock at Davis was rebuilt in 1982 following a structural failure.*

*Image 3 The earth embankment dams and weir at Davis Lockstation raised the level of Opinicon Lake.*



## Davis Lockstation to Jones Falls Lockstation

**152,1 km – 159,0 km**

The construction of a stone arch dam at Jones Falls enlarged Sand Lake for navigation.


*Image 1* *The locks and dam at Jones Falls Lockstation rise19 m. It was the most complex construction project undertaken for the Rideau.*

*Image 2* *From Sand Lake to the Jones Falls Lockstation the navigation channel winds through islands of pre-Cambrian rock created by the Frontenac Arch.*

# Jones Falls Lockstation

## 159,0 km – 159,5 km

Jones Falls Lockstation is located at the southern end of Sand Lake where the Cataraqui River drops about 19 m into Whitefish Lake. The lockstation has a complex layout. The stone arch dam forms the shore of Sand Lake and raises the lake's water level to allow a clear passage to the upper lock, 200 m to the west. The locks were constructed in a natural defile that was substantially excavated for the construction of the upper lock, basin and the three locks in flight.


### *Cultural Resources*

**Four locks** – Three manually operated locks in flight and a fourth manually operated lock, separated by a large turning basin, with a total lift of 18,4 m, 1830. CRM1.

**Stone arch dam** – A stone arch dam 107 m long and 19 m high, 1830. CRM1.

**Defensible lockmaster's house** – A one-storey stone building, 1841. CRM1.

**Blacksmith's forge** – A one-storey stone building, 1843. CRM1.

**Lower lockstation office** – A two-storey frame structure, 1925. CRM2.

*Image 1 The single upper lock at Jones Falls is separated from the lower three locks in flight by a large turning basin.*

*Image 2 The upper lock. It is a typical lock structure with timber frame gates and the stone masonry sill. Sluice tunnels allow water to fill the lock from below.*


*Image 3 The stone arch dam at Jones Falls was the tallest dam in North America at the time.*


*Image 4 The defensible lockmaster's house has been restored to convey the life of a lockmaster's family circa 1840.*


*Image 5 The blacksmith's forge is the location for demonstrations of 19th century blacksmithing. The stone in the foreground is rubble from the original lock construction.*

## Jones Falls Lockstation to Upper Brewers Lockstation

### 159,5 km – 176,3 km

This slackwater section of the Cataraqui River, created by the construction of the dams at Upper Brewers Mills Lockstation, includes Whitefish and Cranberry lakes, and a series of narrow channels. From Cranberry Lake, the canal follows the route of the Cataraqui River to Upper Brewers Lockstation. The Brass Point Bridge, which carries a county road over the canal, is located at Brass Point between Little Cranberry and Cranberry lakes.


*Image 1* *Close to Upper Brewers Lockstation, the topography changes and the canal widens. At Brass Point a timber causeway and swing bridge carry a county road across the canal.*

*Image 2* *The route from Jones Falls Lockstation to Upper Brewers Lockstation is a mix of small lakes and natural channels that wind through the hard granite bedrock.*

## Upper Brewers Lockstation

### 176,3 km – 176,7 km

This lockstation is located along a 400-m excavated channel and a man-made basin. Earth embankment dams hold back the water in the excavated channel from the river that passes nearby. The locks are at the southern end of the excavated channel. A weir crosses the river at the entrance to the excavated channel, creating a slackwater section extending north to Jones Falls.


*Image 1 Upper Brewers Mills Lockstation is set in an excavated channel with the river passing to the right. A powerhouse (upper right) occupies the site of the original mills.*

*Image 2 Winch and push bar mechanism, the most common operating system, is used for controlling the lower gates.*

### *Cultural Resources*

**Two locks** – Two manually operated locks in flight with a combined lift of 5,3 m, 1830. CRM1.

**Earth embankment dams** – A dam on the east side of lock, 122 m long and 3 m high, 1830. CRM1. A shorter dam is on the west side of the lock, 1830. CRM1.

**Defensible lockmaster's house** – A one-storey stone building, 1840. CRM1.

**Canalman's house** – A frame one-and-a-half-storey house, 1897. CRM2

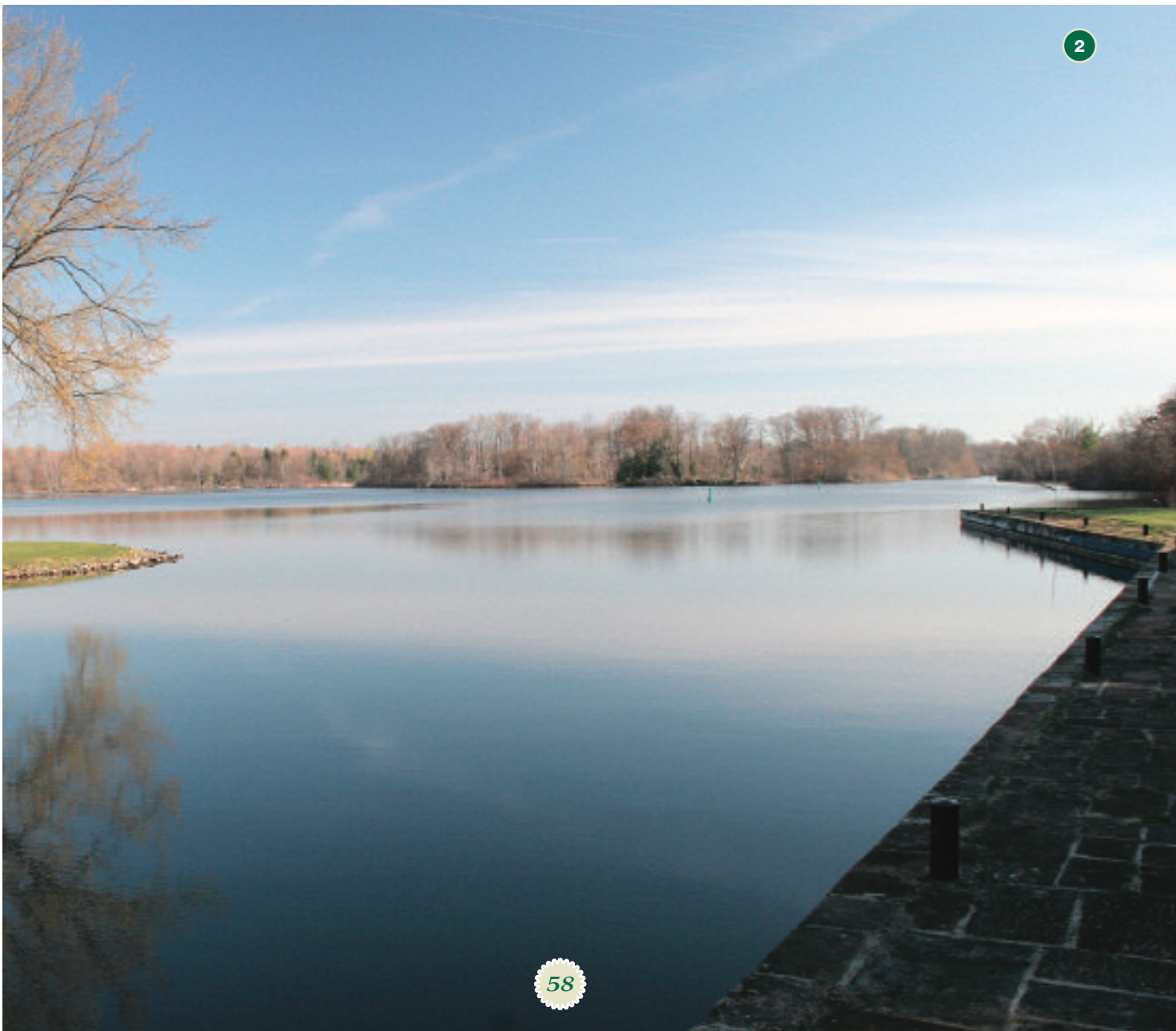
# Upper Brewers Lockstation to Lower Brewers Lockstation

## 176,7 km – 179,3 km

A 2,6-km slackwater enlargement of the original course of the Cataraqui River, created by the construction of the earthen dam at Lower Brewers Lockstation.


*Image 1* *After Upper Brewers, the navigation channel follows the course of the Cataraqui River (top), enlarged by the dam a Lower Brewers Mills.*

*Image 2* *View from the upper wharf at Lower Brewers looking across the small slackwater lake.*



## Lower Brewers Lockstation

### 179,3 km – 179,4 km

Lower Brewers Lockstation is located at the south end of a widening of the Cataraqui River, which forms a small, shallow lake. The lock was built on the east bank of the river in a short excavated channel that created a small island. The original river channel is a short distance to the west of the island. An earthen dam crosses the river from the island running to the west, creating the shallow slackwater section to Upper Brewers.


*Image 1 At Lower Brewers, a powerhouse was built on the river channel that rejoins the canal below the lock.*

### *Cultural Resources*

**One lock** – A manually operated lock with a 4-m lift, reconstructed in 1972 in the original location.

**Defensible lockmaster's house** – A one-storey stone building, 1842, with a frame second storey added in 1900. CRM1.

**Swing bridge** – An authentic replacement of a timber king post swing bridge.


*Image 2 The lock at Lower Brewers Mills with the lower gates open to receive vessels moving upstream on the Cataraqui River.*

*Image 3 View from below the lock, with the defensible lockmaster's house in the background.*

## Lower Brewers Lockstation to Kingston Mills Lockstation

### 179,4 km – 195,0 km

This 15,6-km slackwater section resulted from the construction of the stone arch dam and earthen dams at Kingston Mills Lockstation. Broad and shallow, it is known as the 'River Styx'. It eventually widens and forms Colonel By Lake. This slackwater section is full of stumps from trees that were cut at the time of the construction of the canal. Navigation in this slackwater section, now, as in 1832, is confined to the original line of the Cataraqui River where there is sufficient water depth.

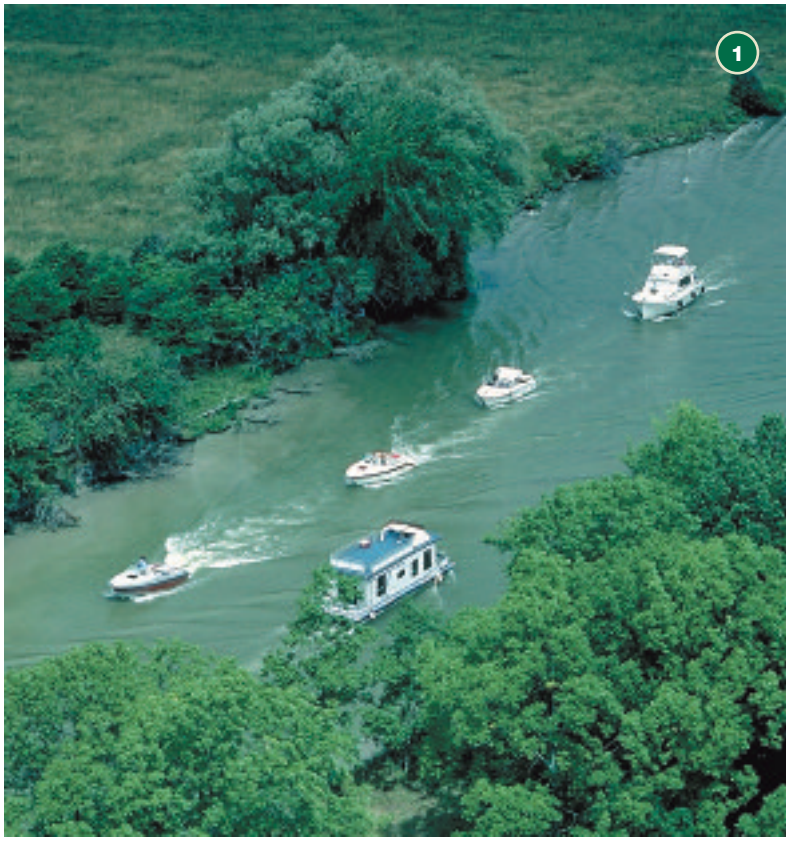



*Image 1* *A line of boats navigating the 'River Styx', a shallow winding section of channel.*

*Image 2* *In this section the canal is shallow and mud-bottomed, supporting extensive wetlands.*

## Kingston Mills Lockstation

### 195,0 km – 195,5 km

At Kingston Mills Lockstation, the Cataraqui River descends from Colonel By Lake to the Cataraqui Estuary, over a series of rocky ledges. A high stone arch dam with a weir, is located across the original course of the river at the head of the falls. Long earthen dams on each side of the stone arch dam hold back the water of Colonel By Lake. The locks were built in a side channel west of the main channel of the river. The upper lock is attached to the south end of the stone arch dam. Below the upper lock, a large basin used for steamship repair still exists. The lower three locks are constructed in flight, with the lowest lock ending the canal at the level of Lake Ontario.


### *Cultural Resources*

**Four locks** – One manually operated lock separated from the three locks in flight by a large turning basin. The locks have a combined lift of 14,8 m, 1830. CRM1.

**Stone arch dam** – A dam, 120 m long and 9 m high, with a weir on the north end, 1830. CRM1.

**Two earth embankment dams** – One on each side of the stone arch dam. The westerly dam is 800 m long, the easterly 600 m long, 1830. CRM1.

**Weir** – A masonry stoplog weir with one bay, 1830. CRM1.

**Blockhouse** – A two-storey building, the ground floor is stone, the second, frame, 1833. CRM1.

**Lockmaster's house** – A small frame building, 1925. CRM2.

*Image 1* *At Kingston Mills Lockstation, the terrain dictated a complex layout for the lockstation. The original falls were dammed and the water controlled to support mills and now a powerhouse.*

*Image 2* *The lower lock at Kingston Mills is the final lock on the Rideau Canal. From here, the Cataraqui River flows directly to Lake Ontario.*

*Image 3* *The blockhouse at Kingston Mills dominated the surrounding terrain. It has been restored to tell the story of its military use.*

*Image 4* *The natural river course was blocked by this stone arch dam and 1,4 km of earth embankment dams to create the slackwater section known as Colonel By Lake.*

*Image 5* *The turning basin between the upper lock and the flight of three locks was used for repairing steam ships.*



## Kingston Mills Lockstation to Lake Ontario

**195,5 km – 202,1 km**

The Cataraqui River flows south from the lockstation under Highway 401 and through a large wetland (the Cataraqui Marsh), before it empties into Lake Ontario at Kingston (population 126 000).


*Image 1* *The navigable route of the Cataraqui River below Kingston Mills is narrow but soon winds its way into the Cataraqui marsh.*

*Image 2* *The Cataraqui River estuary broadens into the marshes and then enters the City of Kingston where it forms the inner harbour.*

# Element 02 – Fort Henry, Kingston

Fort Henry was the key element of the Kingston fortifications system. The fort is embedded atop Point Henry, some 30 m above the water on the eastern side of Kingston Harbour. Its position provides a commanding view of the north channel of the St. Lawrence River, the entrance to the Rideau Canal, and the Kingston harbour area. The glacis of the fort extends down to the shorelines of Deadman Bay to the east and Navy Bay to the west. Given its elevated position, Fort Henry's fields of fire to the east, south and west, were designed to cover most of the harbour area. Fort Henry is a national historic site of Canada.


## *Cultural Resources*

**Redoubt** – This casemated fort has walls that are 10 m high and 2 m thick. A masonry-walled dry ditch, 15 m wide and 7 m high, surrounds the redoubt, 1837. CRM1.

**Advanced battery and glacis** – The nine guns of the battery covered the southern approach to the fort. The glacis south of the branch ditches illustrates the design and defensive style of the fortifications, 1839. CRM1.

**West and east branch ditches** – With masonry-lined walls, the ditches provided flank protection to the fort. The ditches are 9 m wide and extend down to the water's edge on each side of Point Henry, 1839. CRM1.

**West and east branch ditch towers** – These limestone towers are 13 m in height and 9 m in diameter at the base. Each was armed with a cannon on top, 1848. CRM1.

**West and east commissariat stores** – These fortified limestone storerooms connect the redoubt to the advanced battery. Each building is 82 m long and the outer walls are 1,2 m thick, 1842. CRM1.

*Image 1 Innovative in design, Fort Henry was the most important British fortification west of Quebec City.*

*Image 2 The casemated redoubt was excavated into the hilltop to minimize its exposure to artillery fire.*

*Image 3 Fort Henry offers outstanding interpretive programs and is a popular tourist attraction in Eastern Ontario.*


## Element 03 – Fort Frederick, Kingston

Located at the southern end of Point Frederick, the fort consists of a Martello tower with caponiers, a ditch enclosed within earthworks and a masonry curtain wall. Fort Frederick's field of fire covered Navy Bay to the east, the north channel of the St. Lawrence River on the south and, on the west, the entrance to the Rideau Canal. Fort Frederick is part of the Kingston Fortifications National Historic Site of Canada. It is a component of the Royal Military College of Canada, which is administered by the Department of National Defence. The Parks Canada Agency's *Cultural Resource Management Policy* applies only to sites owned by the agency and, therefore, there is no CRM rating for Fort Frederick.

### *Cultural Resources*

**Martello tower** – This is the largest of the defensive towers in Kingston. It is 14 m high with a diameter of 18 m at the base, 1848. FHB.

**Earthworks** – The massive earthworks of the fort contain the powder magazine and surround the Martello tower, 1848. FHB.

**Masonry curtain wall** – The wall encloses the northern end of the fort, 1848. FHB.

**Fortified guard house** – Located on the exterior of the curtain wall, this structure provided shelter for the fort's guards, 1848. FHB.

*Image 1 The Royal Military College of Canada was developed adjacent to Fort Frederick, which now serves as the museum for the college.*

*Image 2 The Martello tower and associated fortifications.*

## Element 04 – Cathcart Tower, Cedar Island

Cathcart Tower is located on Cedar Island, which is within St. Lawrence Islands National Park of Canada. This limestone tower, built in 1848, is 11 m high and 16,5 m in diameter. It is surrounded by a shallow ditch and by a glacis extending to the shorelines on three sides. The guns of Cathcart Tower covered the eastern approaches of Kingston Harbour. The tower is part of the Kingston Fortifications National Historic Site of Canada and is classified as a CRM1 resource.


*Image 1 Cathcart Tower on Cedar Island. Deadman Bay lies between Cedar Island and Point Henry.*

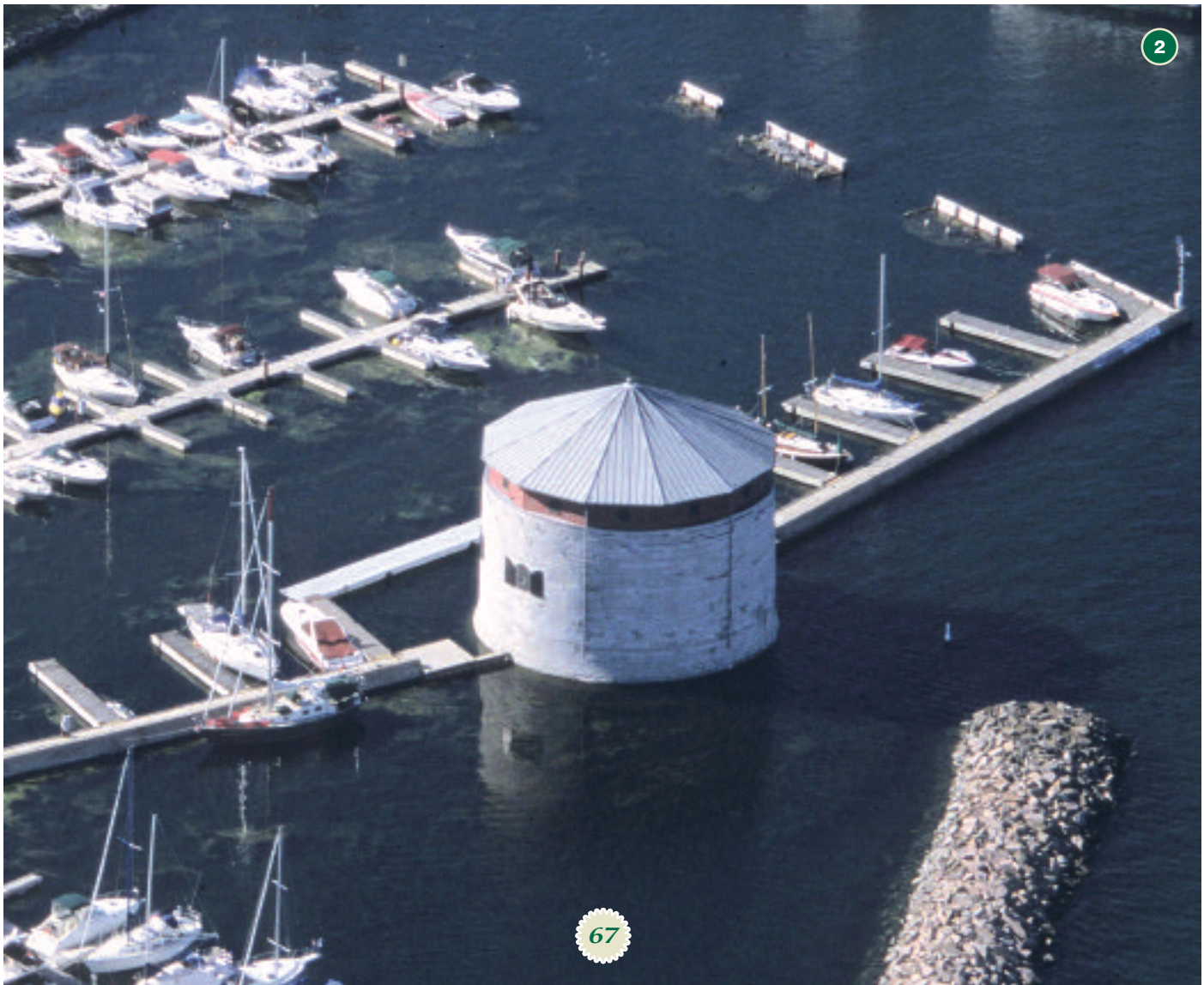
*Image 2 Cathcart Tower. The St. Lawrence River is in the background, Deadman Bay, in the foreground.*

## Element 05 – Shoal Tower, Kingston

Completed in 1847 and built on a shoal in Kingston Harbour, the limestone tower rises 10,8 m above the water and is 20 m in diameter. The rubble and cribbing associated with the tower's construction are visible in the water. Located directly off-shore from Kingston City Hall, Shoal Tower's field of fire protected Kingston's commercial harbour and the entrance to the Rideau Canal. Shoal Tower is part of the Kingston Fortifications National Historic Site of Canada and is classified as a CRM1 resource.


*Image 1* *Shoal Tower was built in Kingston Harbour. In the background are the campus of the Royal Military College of Canada, Fort Frederick and Cathcart Tower.*

*Image 2* *Shoal Tower was built close to the entrance of the Rideau Canal.*



## Element 06 – Murney Tower, Kingston

Built in 1848 on Murney Point, Murney Tower consists of the limestone tower with caponiers and an encircling ditch and glacis. The tower is 11 m high and 17 m in diameter. Murney Tower is located west of the harbour, and its guns were intended to cover the western approaches to the town. It is part of the Kingston Fortifications National Historic Site of Canada and is classified as a CRM1 resource.


*Image 1* *The glacis surrounding Murney Tower is clearly visible in this aerial photograph.*

*Image 2* *Murney Tower with its dry ditch and counterscarp is unique among the Martello towers in Kingston.*

## 2B. History and development of the property

As a result of the American War of Independence, thousands of people who remained loyal to the British Crown moved northwards to Canada. The influx of these loyalists led the government to examine the Cataraqui and the Rideau rivers to determine if adjacent lands were suitable for settlement. By 1800, most of the land along the two rivers had been surveyed and a number of mills had been built, the first, at Kingston Mills, in 1784. Within a few years, there were mills at most of the major falls along the two rivers: at Nicholson's Rapids in 1785, at Merrickville in 1792, followed by Burritt's Rapids in 1793, at Davis in 1800, and at Brewer's Upper Mills in 1802. Despite the presence of these mills, settlement of the interior was very slow. Neither the Rideau nor the Cataraqui was easily navigable, and roads were scarce. It was, consequently, difficult to reach the St. Lawrence River, then the primary transportation route in the colony.

*01 Upper Brewers Lockstation was the site of an 1802 mill that was destroyed by the construction of the Rideau Canal.*

### *Defence of the Empire*

The Rideau Canal was built in response to the tensions that existed between Great Britain and the United States of America, which erupted in armed conflict with the outbreak of the War of 1812. The primary theatre of the war was the colony of Upper Canada (now the Province of Ontario), and the St. Lawrence River was Britain's only military supply line to the colony. During the war, the inadequacy of the St. Lawrence River for this purpose became increasingly apparent. Not only was travel on the river exceedingly slow and costly, because of a series of rapids, but also the river itself was exposed to American attack along most of its length between Montréal and Lake Ontario. Disruption of the supply line would have jeopardized the security of the colony. British authorities were determined to prevent such a situation from arising and developed the concept of a military canal linking the Ottawa River and Lake Ontario.

What also became evident to military planners early in the war was the need for a substantial naval force on Lake Ontario. In an era when virtually all transportation was by water, the control of Lake Ontario was essential for the defence of the colony. The British naval dockyard in Kingston was the centre for ship construction, and the War of 1812 saw a virtual arms race as each side built larger and more heavily armed ships. The need for strong defensive works in connection with the Kingston dockyard, along with a secure military supply route, was regarded as vital for the defence of the colony.

Even with the end of hostilities, the United States of America was still seen as a potential threat to the security of Canada. Military planners were determined to pursue the idea of a military canal and, in the fall of 1814, turned their attention to the Rideau and Cataraqui rivers as a possible route. Twelve years later, work began on the construction of the Rideau Canal.

### *Lieutenant-Colonel John By's Vision*

Lieutenant-Colonel John By of the Corps of Royal Engineers was appointed by the British government to supervise the construction of the Rideau Canal, and he arrived in Canada in the spring of 1826. What he discovered, when he travelled the proposed route for the canal, was a wilderness. The land had been surveyed years earlier, but the area was only sparsely populated. Besides Kingston, located at the point where the Cataraqui River flows into Lake Ontario, the only established communities were the milling villages

of Merrickville, Burritt's Rapids and Chaffey's Mills. A network of roads had been developed to provide access to Kingston and, northward, to the Ottawa River, but most of them were no more than trails. Lumbering, the chief source of income, was impeded by the difficulty of transporting the timber because of the numerous rapids of the two rivers.

*02 The Rideau-Cataraqui region was a virtual wilderness when the construction of the canal began.*

Before John By's arrival, the route for the canal had been studied in considerable detail, and an engineering approach to its construction had been recommended. This involved bypassing the rapids of the rivers with excavated channels where locks would be used to overcome elevation changes. The implementation of this plan would have entailed the excavation of more than 40 km of channels over the 202-km length of the canal. Lieutenant-Colonel By, as a result of his initial survey of the route, decided to adopt a quite different approach. In the words of historian Robert Passfield, in *Building the Rideau Canal*, he constructed "a slackwater system in which high dams raised the water level to flood the rapids and back up the water to a navigable depth. Each stillwater so created would stretch upriver to the base of the dam at the next set of rapids. … The construction of a slackwater system complicated the surveying task but it reduced excavation work immensely … and the depth of the excavations was also reduced considerably."

The specifications for the Rideau Canal, as approved by the British government, called for locks 33 m long by 3 m wide and 1,5 m deep. These were the dimensions of the locks of the recently built Lachine Canal near Montréal, which were designed for flat-bottomed vessels propelled by sail or manpower. Immediately upon his arrival in 1826, John By began to press his superiors to approve much larger locks that would accommodate steamboats, just then making their appearance in North America. His reasons were both military and commercial. He argued that steamboats were faster and more versatile for moving troops and supplies, that they could be readily armed during wartime, and that they would ensure Britain's control over Lake Ontario. Steamboats also had obvious commercial benefits for the transportation of raw materials and agricultural produce. His recommendation was for locks 40,8 m long by 10,1 m wide, with a depth of 1,5 m.

Lieutenant-Colonel By's request for larger locks on the canal initially met with considerable scepticism. Apart from the increased costs, there was concern over the scale of the locks, which was unprecedented at the time. John By persevered, and, after two commissions had examined the benefits of a steamboat canal, the government accepted his recommendations, although the length of locks that was approved was reduced to 37,8 m. In the summer of 1828, the new estimates for the cost of the canal were accepted and construction proceeded on the larger locks.

An excerpt from *Building the Rideau Canal* well describes the types of design and engineering challenges that John By faced and resolved during the construction of the canal:

"Determining the best route for a canal and an efficient layout for the canal structures was one of the most demanding tasks in 19th century civil engineering. It required skill and judgment, exhaustive survey work and a minute exploration of the terrain. The object was to find not only a practicable route, but one which would best preserve the [water] level desired with an absolute minimum of excavating and embanking over the shortest possible distance. Even with the best of planning, changes were commonly made during construction, as was the case of the first [Ottawa] section of the Rideau Canal, to take full advantage of the terrain. Between the Entrance Valley and Dows Swamp two canal cuts were made, joined by

a natural gully, and two parallel mounds were erected across Dows Swamp using clay from the canal excavations. The mounds were about 804 m apart and between them raised the water level to form Dows Lake. Two of the three locks intended for Hog's Back were moved to Hartwell's where higher ground began beyond the lake. With the canal raised 6,7 m at Hartwell's, it was possible to follow a straight cut directly to the Hog's Back with a minimum of excavation."

When the decision was made to construct larger locks, new plans and specifications were prepared for the enlarged works, and construction was underway at all the sites by the end of 1828. The construction of the Rideau Canal was an immense

*03 Lieutenant-Colonel John By chose "Entrance Valley" as the location for the Ottawa Lockstation.*

and daunting project, involving more than 6 000 workers at multiple worksites. Despite unforeseen circumstances, such as higher-than-expected water volumes and unfavourable soil and rock conditions, the work progressed well. Late in 1830, Lieutenant-Colonel By predicted that navigation of the entire canal would be possible by August of 1831. His prediction proved optimistic, but it was only a few months later, on 24 May 1832, that he began a triumphant journey along the full length of the canal from the Ottawa River to Kingston.

The Rideau Canal was built for military purposes, to provide a secure transportation route for British troops and supplies between Montréal and Kingston. During its construction, Lieutenant-Colonel By did not lose sight of its strategic function and included in his plans the building of a blockhouse at each lockstation. In the end, the cost was deemed prohibitive and only six were built at locations considered particularly vulnerable: Merrickville, The Narrows, Newboro, Jones Falls, Kingston Mills, and at the dam at Morton Bay.

The military planners who, following the War of 1812, had successfully recommended the building of the canal, had also foreseen the need for the construction of strong fortifications at its southern terminus at Kingston. Upon completion of the canal, work began on the most important component of the defensive system planned for Kingston, the replacement of the inadequate 1812 fortifications on Point Henry, located on the eastern side of Kingston Harbour and the entrance to the Rideau Canal.

Point Henry is an elevated promontory some 30 m above lake level, with a commanding view of the north channel of the St. Lawrence River, the entrance to the Rideau Canal, and Kingston Harbour. Work began on Fort Henry in 1832, the Royal Engineers having designed a self-defending redoubt, with an advanced battery to the south, joined to the redoubt by two ranges of commissariat stores. A branch ditch ran from the east and west sides of the redoubt to the shore. When construction was completed in 1842, Fort Henry was the largest and strongest British fortification in North America west of Quebec City. Several years later, in recognition of their defensive weakness, a small tower was built at the lower extremity of each of the branch ditches.

While work was proceeding on Fort Henry, the colony of Upper Canada faced an internal crisis that led to rebellion in 1837. The rebellion was soon put down but left the authorities a legacy of uncertainty about the security of the canal. This led to the building of single-storey, stone defensible lockmaster's houses at strategic lockstations: Old Slys, Clowes and Nicholsons. In the 1840s, in response to increasing tensions between Britain and the United States of America, more defensible lockmaster's houses were built: at Upper and Lower Brewers, Edmonds, Hogs Back, and several other lockstations.

*The defensible lockmaster's house at Old Slys Lockstation was one of the many defensive structures along the canal.*

The final steps to strengthen the defences of Kingston were also a response to the worsening relations between Britain and the United States of America. Between 1846 and 1848, the British built four Martello towers to protect Kingston Harbour and the entrance to the canal. Upon their completion in 1848, the Kingston defences, anchored by Fort Henry, provided the town, the dockyard and the Rideau Canal with substantial fortifications and ample firepower to repel attack.

*04 Shoal Tower is unique among Martello towers in that it is surrounded by water.*

## *The Changing Role of the Canal*

The Rideau was built as a military canal and, for several decades, was an important element in the defence of Canada. It had, however, never been thought of as having an exclusively military

*05 Fort Henry was built to protect the entrance to the Rideau Canal at Kingston.*

function, and soon after it opened the canal was carrying much of the commercial traffic that had previously used the St. Lawrence River. By the middle of the century, the Rideau's strategic importance had diminished considerably, and it had become mainly a commercial transportation system. At the same time, its role as the principal route between Montréal and Kingston also changed. In 1848, the colonial government opened a series of canals on the St. Lawrence River and enlarged the Lachine Canal at Montréal, thereby creating a much more direct route to the interior than the Rideau system. The canal, thereafter, was mainly a regional transportation system for eastern Ontario, a role it continued to serve until improvements were made in the road system after the First World War.

As a regional transportation system, the Rideau Canal was extended to the town of Perth, through what is known as the Tay Canal. Perth had been established in 1816 on the Tay River, about 13 km from Rideau Lake. Because of extensive rapids, the river was unnavigable, and, in 1830, a private company was set up to build a set of locks to provide Perth with access to the Rideau Canal. With its five small wooden locks, the canal was scarcely adequate to meet the commercial needs of Perth. In the early 1880s, local residents persuaded the federal government to build new locks, the size of those on the Rideau system. In 1887, the second Tay Canal was completed.

*06 Perth was established in 1816. The Tay Canal, completed in 1887, gave the town's industries access to the Rideau Canal.*

As a reliable and inexpensive means of carrying agricultural and industrial products to outside markets, the Rideau Canal had a profound impact on the development and growth of the region. In 1836, a few years after the completion of the canal, the population along the waterway stood at about 30 000. By 1861, the population had doubled, mainly between Smiths Falls and Bytown (Ottawa), where the arable land supported a prosperous agricultural population. Throughout the region, a number of small settlements expanded because of the canal. Villages such as Portland, Newboro, Westport and Chaffeys Lock thrived as small-scale milling, service or transshipment centres. Merrickville grew rapidly. By 1848, it had the largest woollen mills in the colony, and a foundry produced stoves for an expanding colonial market. Bytown, having been established as the headquarters for the construction of the canal, grew rapidly after the canal was built. In 1855, it became a city, and its name was changed to Ottawa. In 1867, it became the capital of the new Dominion of Canada.

A military and then a commercial transportation route, by the end of the 19th century the Rideau Canal had taken on a new role, as a vacation destination. The taste for picturesque scenery had been rising amongst the growing middle classes of Canada and the United States of America. The Rideau and Cataraqui lakes, highly valued for their scenic quality, attracted outdoor vacationers in search of fishing, scenery and camping. By the 1870s, a few vacation hotels had been established along the canal, the earliest being at Jones Falls. A number of other resorts, most notably the Opinicon Hotel at Chaffeys Lock, were established in the 1890s. Summer cottages were built in increasing numbers throughout the Rideau and Cataraqui lakes, particularly after the First World War when road access to them improved. This trend towards the recreational use of the canal accelerated rapidly during the 1950s and breathed new life into the canal.

*By the end of the 19th century, the canal was increasingly used as a recreational waterway.*

### *The Changing Role of the Canal's Fortifications*

Following the tensions of the 1840s, the risk of war between Britain and the United States of America receded. As a result, there was a gradual change in the use of the fortifications built for the protection of the Rideau Canal. When British troops left the country in 1870, following the establishment of the Dominion of Canada in 1867, Fort Henry and the four Martello towers were turned over to the Department of the Militia of the Canadian government. Fort Henry continued in use as a school of artillery for the army and as a storage depot well into the 20th century. Following the Second World War, the fort became the premier tourist attraction in eastern Ontario, presenting the life of the garrison stationed there in 1867.

The Martello towers ceased any military function by the end of the 19th century. In 1925, Murney Tower was leased to the Kingston Historical Society, which still operates it as a museum.

Fort Frederick became the museum of the Royal Military College of Canada. No new role was found for Shoal and Cathcart towers, because they are not easily accessible.

*Fort Frederick, the largest of Kingston's Martello towers is now a museum.*

Although they were part of the defences of the canal, the fortified lockmaster's houses were also intended to accommodate lockmasters and their families, a role they continued to serve until the 1960s. The Jones Falls and Morton Bay blockhouses deteriorated and were eventually demolished. The four surviving blockhouses, Newboro, The Narrows, Merrickville and Kingston Mills, were used as lockmaster's houses and, later, as museums or lockstation offices.

*The blockhouse at Kingston Mills eventually served as a lockmaster's house. It is now a museum.*

### *The Structural History of the Canal's Engineering Works*

Summarising the structural history of the Rideau Canal, historian Robert Passfield states that:

"During the 19th century the Rideau Canal was widely acclaimed as one of the finest canals ever built. … Only a few relatively minor structural failures have occurred … over the years. Exceptionally severe flooding took place from time to time and on each occasion driftwood and ice floes borne on the crest of the flood broke through protecting booms and breached several waste weirs. None of the high stone arch dams were ever damaged, however, and only one waste weir, the Long Island weir, suffered repeated injury. The other weirs and the low overflow dams suffered only random, readily repairable damage and many of the stone weirs and overflow dams were not replaced until well into the 20th century. Most of the 47 locks have continued to function to the present day with but minor repairs or partial rebuilding and renewal of the stonework."

The needs of the modern world have had some affect on the structures of the canal, a notable example being at Smiths Falls Combined Lockstation. As built in 1830, the 7,9 m lift required at this lockstation was the work of three locks in flight. Because of an increase in road traffic, the swing bridge over the locks was replaced in 1889 and, again, in 1923. By the 1960s, this swing bridge had become a major block to the flow of traffic. The solution proposed by the Department of Transport, responsible at that time for the operation of the canal, was the replacement of the swing bridge with a high-level fixed bridge, resulting in the construction of a new, single, electrified concrete lock. The work was completed in 1974.

An interesting sidelight to this story is the considerable opposition aroused by the plan to demolish the three original locks, and they were, in fact, preserved. A similar struggle between tradition and modern development occurred a few years earlier in connection with plans to electrify all the locks of the canal. Electrification was the Department of Transport's response to the increased usage of the canal resulting from recreational boating. Newboro, one of the busiest

locks on the system, was electrified in 1966. In the words of canal historian, Ken Watson, in *A History of the Rideau Lockstations*, "This met with a flurry of protest from residents and concerned groups who felt that electrifying the locks would forever compromise the historic integrity of the Rideau. Eventually, those concerned with protecting the heritage of the Rideau won out and only two other locks, the lock at Black Rapids, and the new combined lock at Smiths Falls, were ever electrified.

### *The Structural History of the Canal's Bridges*

At the time of its construction, only one bridge was built to cross the Rideau Canal, the Sappers Bridge at the Ottawa Lockstation, connecting Upper and Lower Bytown. Eventually, swing bridges became a conspicuous feature at many of the lockstations, reflecting the development of the road system in Eastern Ontario. Watson's story of the Merrickville Lockstation provides an interesting, if extreme, example of the evolution of bridge building on the canal in response to the needs of road traffic:

"Over the years several bridges have spanned the canal works and river. The original bridge crossing the locks was a rolling bridge, positioned over the lower end of the upper lock. It was replaced in 1843 by a timber swing bridge. In 1892, the swing bridge was replaced with a new steel bridge, this time located just downstream of the lower gates of the upper lock. This new position allowed more vessels to pass underneath it without having to swing the bridge (and disrupt traffic). It was replaced in 1933 by another steel bridge which was electrified in 1955. The current electric swing bridge was installed in 1990."

The frequency of bridge replacement at Merrickville was not typical of all lockstations. When the first road was built across Old Slys Lockstation in 1857, it crossed the waste weir by means of a fixed bridge, with a swing bridge across the lock. These two bridges were replaced only in the 1960s. Although the swing bridges in use today are all replacements of the originals, some of the steel bridges date from the late 19th and early 20th centuries. The timber bridges found at several of the lockstations are authentically designed replacements of the originals.


*An early map of Bytown showing the Ottawa Locks and the first bridge built to cross the canal.*

*The 1892 steel swing bridge at Merrickville. It was replaced in 1933.*

### *The Structural History of the Canal's Buildings and Fortifications*

During the history of the canal, additional buildings, most of them lockstation offices, were added at a number of the lockstations. The lockstation office at Davis dates from 1875, that at Ottawa, from 1884, that at Edmonds, from 1905. In the 1960s and 1970s, no fewer than ten offices were built.

Once they were no longer needed for defensive purposes, the canal's blockhouses were adapted to serve other purposes. Eventually, the two that were built entirely of timber (Jones Falls and Morton Bay) deteriorated and were demolished. In the 1960s, the others, at Merrickville, The Narrows, Newboro and Kingston Mills were restored to their original 1830s appearance.

*Frame second stories were added to many of the defensible lockmaster's houses when they were no longer needed to protect the canal.*

Defensible lockmaster's houses to accommodate lockmasters and their families were built at most of the lockstations during or shortly after the construction of the canal. There was a standard pattern that most of them followed: they were small, square, one-storey stone buildings, functional but providing few physical comforts to the occupants. Towards the end of the 19th century and early in the 20th century, considerable effort was made by canal authorities to improve the living conditions of these houses by adding second storeys or building extensions to them. In a few instances, as at Kingston Mills in 1904 and at Hogs Back in 1907, the original buildings were replaced.

Since their completion in the 1840s, there has been little structural change to the various elements of the fortifications in Kingston. Fort Henry is, today, very much as it was when construction was completed. Soon after the Martello towers were finished, the Royal Engineers, recognizing the inadvisability of leaving their flat gun platforms exposed to Canadian winters, designed easily removable roofs to protect them. The roofs have been replaced over time, but their design elements have remained consistent.

*07 Fort Henry is largely unchanged since its completion in the 1840s.*

Externally, all of the Martello towers have survived intact. On the interior, however, the two towers that military authorities largely abandoned because of their inconvenient locations (Shoal and Cathcart), deteriorated badly. The wooden main floors of both towers collapsed, damaging the partition walls of the storerooms and powder magazine on the lower level of each. Otherwise, they remain structurally unchanged.

### *The History of the Conservation of the Rideau Canal and its Fortifications*

For nearly 175 years, the Rideau Canal has continued to serve, without interruption, as a water route between Ottawa and Kingston. This is, in part, a tribute to the high construction standards that John By insisted upon during its building and, in part, to the fact that it has been well maintained over the years.

For more than two decades after its completion, the maintenance of the canal was the responsibility of the British government and, specifically, of the troops stationed at Bytown, many of whom had been involved in its construction. In 1856, the canal was turned over to the colonial government, which became responsible for its operation and maintenance. With the establishment of the Dominion of Canada in 1867, the federal government took charge of all the canals in the new country, a responsibility that it continues to have today.

For much of the canal's history, maintenance followed the accepted practices of the day. In the early 20th century, if dams required major repairs or replacement, the work was done in concrete. Similarly with locks: damaged masonry was normally replaced in kind, but concrete was, on occasion, used instead. In addition, over time, the original wooden floors used at many of the locks were replaced by concrete, a more practical medium for the purpose.

Although maintenance practices current at the time were applied to the canal, it generally escaped the attention of modernizers anxious to update its operation. Since early in the 20th century, the growth and prosperity of the Rideau area has depended on road and railway transportation, not on the Rideau Canal. With the canal's new focus as a recreational waterway, there has been only sporadic interest in modernizing its operation.

Another part of the history of the conservation of the canal was a growing public awareness of its historic significance. In 1926, the Historic Sites and Monuments Board of Canada recognized the canal as a national historic site, a designation that led to a closer public scrutiny of initiatives to alter its character in the name of progress. The designation also had beneficial repercussions on the treatment of significant canal buildings. Ken Watson, in his *History of the Rideau Lockstations*, records the story of the 1833 blockhouse at Newboro Lockstation:

"By 1856 the blockhouse was serving exclusively as the lockmaster's house. In 1888 it underwent extensive renovations. Large framed additions were added to it, giving it the appearance of a farmhouse. … It stayed like that, deteriorating over the years, until abandoned in 1962. The Department of Transport planned to sell off or demolish the building, however the Historic Sites Branch of the federal government argued that it should be preserved. … In 1967 and 1968 the blockhouse underwent extensive renovations." Afterwards, the department proceeded to restore the blockhouses at Merrickville, Kingston Mills and The Narrows, and the lockmaster's house at Jones Falls.

*The blockhouse at The Narrows was considerably enlarged later in the 19th century.*

*The blockhouse at The Narrows was restored in the 1960s.*

1972 was a significant date in the history of the conservation of the Rideau Canal. In recognition of its heritage character and status as a national historic site, responsibility for the canal's operation was transferred from the Department of Transport to the Parks Canada Agency, the federal government agency responsible for managing Canada's national historic sites. The consequence of the transfer has been a new focus on the heritage values of the property and their protection, consistent with the agency's *Cultural Resource Management Policy*.

Under the administration of the Parks Canada Agency, significant investments have been made in the stabilization and conservation of lock structures, the structural stability of dams and the periodic replacement of lock gates. As a result, since 1990 the overall asset condition has been at a relatively high level. But, despite the application of rigorous cultural resource management policies, there has been some loss of historic material due the level of structural deterioration. The westerly lock wall at Lower Brewers lock failed and collapsed in 1976 and had to be rebuilt, with as much material as possible being salvaged. At Davis and Ottawa lockstations, deterioration had advanced to the extent that several lock chambers were reconstructed. Today, techniques developed in the 1990s, allow canal engineers to stabilize the walls without dismantling the structure, thereby preventing loss of historic materials. Moreover, the ongoing monitoring of assets allows for the priorization of timely interventions consistent with principles of conservation, governing policies and best practices.

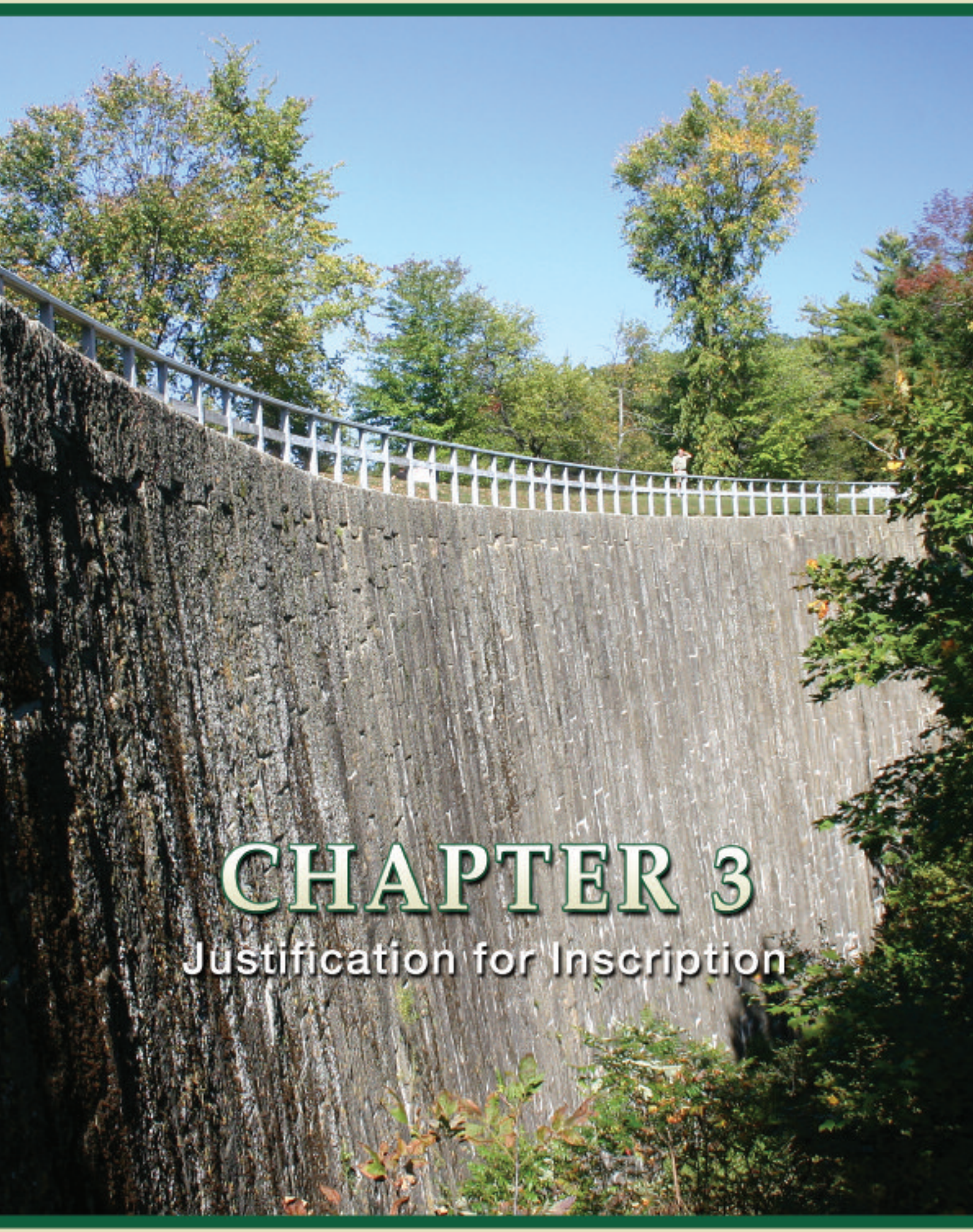
Throughout most of their history, Fort Henry and the four Martello towers were the responsibility of the Department of National Defence. Fort Henry was transferred from National Defence to the Parks Canada Agency in 1999. Three of the towers (Shoal, Murney and Cathcart) have been under the administration of the Parks Canada Agency for many years. Fort Frederick, on the grounds of the Royal Military College of Canada, continues to be under the care of National Defence.

In the late 1930s, Fort Henry, nearly a century after its completion, was subject to a major conservation project to prepare it for its new role as a tourist attraction. In the years following that conservation project, National Defence and the operator of the

*Five of the eight locks in flight at the Ottawa Lockstation were reconstructed in the 1980s.*

fort, the St. Lawrence Parks Commission, undertook a program of routine maintenance to conserve the fort's historic fabric. Currently, Fort Henry is the subject of a second major conservation project, multi-year in scope, to address structural problems that have arisen since the 1930s.

Fort Frederick and Murney Tower, benefiting from their long-time use as museums, have never required extensive conservation work. Good routine maintenance practices in combination with careful monitoring programs and periodic structural conservation have limited the need for large-scale repairs to the two towers. The story is somewhat different for Shoal and Cathcart towers. Extensive monitoring of the two towers in the 1990s revealed significant structural problems. Major work was undertaken at Shoal Tower in the mid-1990s. Structurally, it is now quite sound. Design specifications for Cathcart have been prepared but not yet implemented.



# CHAPTER 3

## Justification for Inscription

## 3. Justification for Inscription

### *A. Criteria under which inscription is proposed*

**Criterion (i): The Rideau Canal is a masterpiece of human creative genius.**

The Rideau Canal is a masterpiece of human creative genius, in its concept, design, and engineering. To build the canal, Lieutenant-Colonel John By, the canal's principal designer, had two options. The conventional and proven option was to use excavated channels of considerable length to link existing waterways that were navigable, bypassing falls, rapids, swamps and rocky shallows. John By dismissed this approach as being too expensive and time-consuming, given the terrain, geology and configuration of the lakes and rivers. Through a fundamental stroke of creative genius, he envisioned another option to join the watersheds of the two river systems, the Rideau and the Cataraqui: a slackwater canal, executed on a monumental scale. His decision to build a slackwater canal was highly innovative – and technologically risky. The slackwater system was virtually untried at this time in Europe. Slackwater techniques on a limited scale had been attempted in North America, but none of these canals was near the complexity of what John By conceived for the Rideau Canal.

The slackwater design that John By envisioned for the Rideau Canal required a very large number of embankments and high dams in order to inundate shallows, swamps, and rapids, and thus create a series of impoundments of sufficient depth to allow navigation along the full length of the canal. This approach dramatically reduced the requirement for extensive excavated channels, thereby reducing costs and construction time. The Corps of Royal Engineers responded with designs for an ingenious system of engineering works, including seventy-four dams and forty-seven locks at twenty-four lockstations, allowing vessels to ascend 85 m to the summit of the canal from the Ottawa River, and then descend 50 m to Lake Ontario.

*Navigation of the Rideau and Cataraqui rivers was impeded by numerous rapids and waterfalls.*

One of the problems that plagued slackwater canals and discouraged their use was the difficulty of controlling water levels on such a system. Once again, John By and his engineers created an imaginative and effective solution to the problem. They included in the plan for the canal a system of dams and embankments that created lakes to serve as reservoirs, allowing water to be stored to supply the canal during dry summer months. Conversely, during periods when excess water was in the system, such as in the spring or during heavy rainfalls, the reservoirs allowed water to be held back and released gradually, preventing damage to engineering works.

*08 The lock, weir and 400-m-long earth embankment dam at The Narrows created a slackwater section allowing navigation to Newboro Lockstation.*

The genius of the slackwater canal solution to the construction of the Rideau Canal was equaled by John By's foresight regarding the future dominance

of steamboats as a mode of transportation. The specifications for the canal that he was given called for locks sufficient in size to accommodate Durham boats, flat-bottomed vessels propelled by sail or oars. Soon after his arrival in Canada, Lieutenant-Colonel By sought, and was given, authorization from his superiors to build locks to accommodate vessels using the newly emerging technology of steam power. The Rideau Canal became one of the first canals in the world designed specifically for steam-powered vessels.

**Criterion (ii): The Rideau Canal exhibits an important interchange of human values, over a span of time or within a cultural area of the world, on developments in technology.**

Building the Rideau Canal and its fortifications required adapting existing European technology to the North American environment and to the specific circumstances and geography of its setting. The experience gained in the engineering of canal works and fortifications for the Rideau Canal advanced these technologies to a new level.

### *The Transfer of Canal Technology*

The concept of canals and their engineering principles and technology were well known in Europe prior to the construction of the Rideau Canal. Canals had emerged as important commercial transportation systems in the mid-18th century, closely associated with the Industrial Revolution. The Rideau Canal was built using canal technology developed in Europe and transferred to North America. However, the existing European canal technology was adapted and advanced on the Rideau in order to build a slackwater system on a scale previously untried.

There were three areas of canal-building technology in which significant adaptation and technological advancement occurred during the building of the Rideau Canal – surveying methodology, lock engineering and dam engineering.

### *Surveying Methodology*

The Corps of Royal Engineers brought European surveying methodologies to North America for the construction of the Rideau Canal. The adaptations they made in the application of the transferred technologies, to meet the exigencies of particular local conditions, was an outstanding technological advancement.

The Royal Engineers developed truly innovative methods for orienting a survey and taking levels. First, a directional fire technique was adopted, enabling the surveyors to orient a survey over great distances in the dense forest. Second, they used compass traverses rather than conventional theodolite traverses, which were impossible in the forest. Third, so-called 'flying levels' were taken of the rise or fall of the land, based on the vertical position of a light placed at an established height on the leveling staff. And fourth, with the impossibility of running theodolite traverses, cross-sections of the terrain were mapped using a grid survey on compass bearings. These maps allowed the canal to be routed to take advantage of the natural terrain, thereby minimizing tree clearing, excavation and embanking work.

These innovations eliminated a great deal of difficult, costly and time-consuming labour in clearing away forest growth to obtain clear sight lines. They enabled canal works, stretching throughout a 202-km-long wilderness corridor, to be laid out in a remarkably short period of time during the winter of 1826 and spring of 1827.

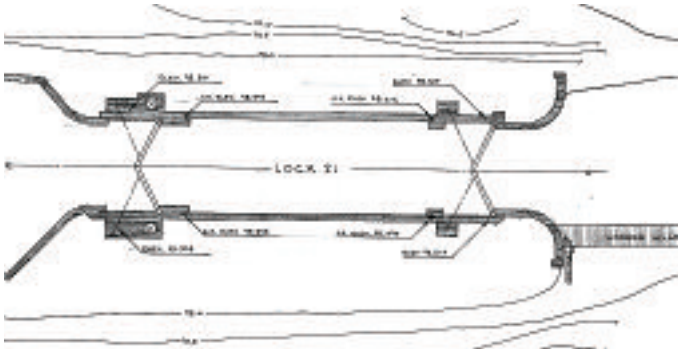
### *Lock Engineering*

The second important area of the transfer of European technology where the Royal Engineers took an established technology to a new level was in lock engineering. Engineering principles transferred from Europe were used for the construction of the Rideau. The lock-building achievement on the Rideau was, however, the design and construction of locks capable of withstanding the unprecedented force of water pressure resulting from the high lifts and large lock chambers required for a slackwater canal built for steamboats.

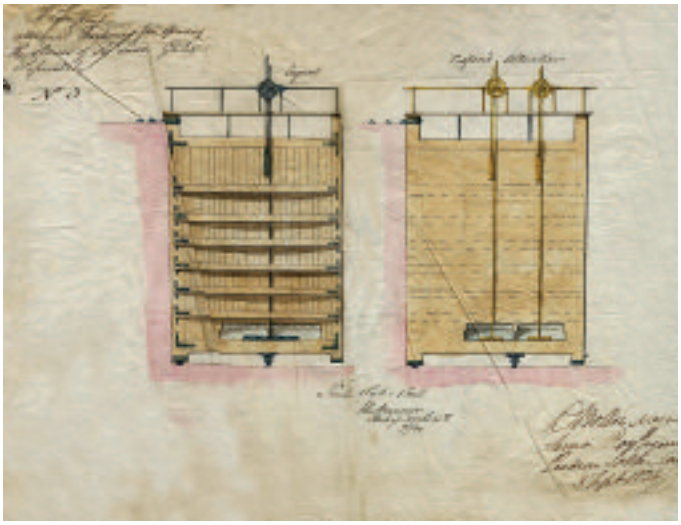
*09 The Rideau was one of the first canals designed to accommodate steamboats.*

Typically, locks on European canals had a lift of 2,4 m to 3,0 m. To overcome the terrain on the route of the Rideau Canal, John By was faced with the choice of building numerous locks with low lifts or fewer locks with high lifts. To minimize costs and construction time, he opted for high lifts and, therefore, fewer locks. For example, rather than construct six locks or more at Jones Falls, to overcome a rise of 18,4 m, four locks were constructed, with a maximum lift of 4,6 m. In addition, to accommodate steamboats, the lock chambers had to be significantly larger than those employed up to that time on European and North American canals. The locks on the Rideau Canal were 37,8 m long and 9,1 m wide. In comparison, the contemporary Blackstone Canal in the United States of America had locks 21,3 m long and 3,1 m wide.

The force of water pressure created by the high lifts and large size of the locks required engineering advancements in design and construction. Lock walls, gates, sluice tunnels and wing walls were all designed and constructed to carry significantly greater force than in earlier canals. In later years, these advancements in lock engineering were applied elsewhere in the construction of locks, such as those built on the St. Lawrence River in the late 1840s.



*The locks of the Rideau Canal were significantly larger than those found in Europe at the time.*



*The large size of the lock chambers of the Rideau Canal required the design of massive lock gates.*

### *Dam Engineering*

The third major area of technology transfer where John By and his engineers took an established technology to new levels during the design and construction of the Rideau Canal was in the engineering of dams. The slackwater system used for the canal required a large number of dams to inundate shallows and rapids. Individually, and as a system, these dams represented a considerable advancement in dam-building technology.

The massive Jones Falls Stone Arch Dam well illustrates the adaptation and advancement of European dam-building technology to meet the challenges of the Rideau Canal. To deal with the deep gorge, falls and rapids at Jones Falls required a dam with a span 107 m, to a height of 19 m, double the height of any dam in North America at the time. John By's design integrated stone masonry dam technology with the technology of clay core earth dams, to cope with the incredible

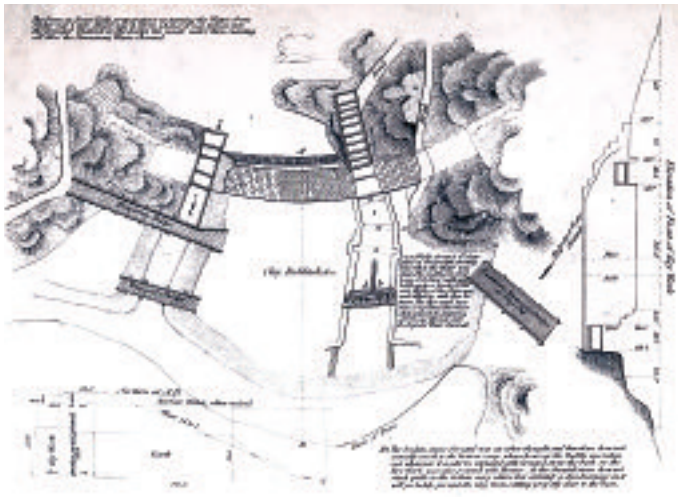
stresses on a structure of this scale. The Jones Falls dam's international importance was recognized in the International Canal Monuments List, prepared under the auspices of The International Committee for the Conservation of Industrial Heritage (TICCIH).

*10 The Jones Falls Stone Arch Dam was an astounding feat of engineering.*

To establish the impoundments of water that were required for the Rideau Canal's slackwater system, sets of dams were often required at lockstations. The engineering of such dam systems involved the use of earth embankment dams, stone masonry dams and stone masonry water control weirs in combination. The system of dams at Kingston Mills illustrates John By's mastery of traditional European dam building technology and his advancement of it. He achieved the impoundment of the 15.6-km stretch of water above Kingston Mills through a system of dams that included two earth embankments dams, 1,4 km in total length, a 120-m long stone masonry arch dam, natural geological features, a water control weir, and the upper lock.

### *The Transfer of Military Technology*

The fortifications built at Kingston to defend the mouth of the Rideau Canal represent the transfer of European military technology to North America. Fort Henry was, however, a considerable advance over earlier fortifications built in British North



*The construction of the Jones Falls dam was a complex feat of engineering.*

*The slackwater system often entailed the construction of a system of dams, as at Kingston Mills.*

America. Major citadels built in the 1820s at Halifax and Quebec City conformed to the traditional Vauban design of fortification. For Fort Henry, engineers abandoned this approach, adapting newer Prussian thinking to create a fortification that was unique in British North America. The result was a powerful and compact fort, well suited to the topography of Point Henry.

The four Martello towers, built between 1846 and 1848 to protect Kingston Harbour and the entrance to the canal, were designed by Lieutenant-Colonel W. Holloway of the Corps of Royal Engineers. Martello towers had been adapted by the British from round tower fortifications found on the European continent, and built to protect the English coastlines during the period of the Napoleonic

*Fort Henry was innovative in design and planned to be a self-defending redoubt.*

Wars. They extended their use to British North America, eventually building twelve towers in total, the last being the four in Kingston. The Kingston towers were the culmination of decades of British development of round masonry tower design and construction. All incorporated significant innovative structural and external features to address defensive weaknesses previously associated with this type of fortification. Of the four, Murney is the best example of the final phase in this process of evolution. Like traditional Martello towers, it consisted of two floors with a gun platform protected by a high parapet. It was, however, surrounded by a deep ditch with a dry masonry counterscarp. Tower and ditch were protected by a rubble-filled glacis. Four massive caponiers projected from the base of the tower, enabling defenders to fire in to the ditch. All the Kingston towers were innovative in design and of a high quality of construction. Murney is, however, regarded as the most sophisticated Martello tower to be built in British North America.

*11 Murney Tower, with ditch, counterscarp, glacis and caponiers, was a small self-contained fortress.*

**Criterion (iv): The Rideau Canal is an outstanding example of a technological ensemble which illustrates a significant stage in human history.**

The Rideau Canal was built at a time when two powers, Great Britain and the United States of America, vied for the control of the northern portion of the North American continent. This significant stage in human history resulted in the creation of two distinct political and cultural entities, Canada and the United States of America.

One of very few canals in the world built primarily for strategic military purposes, the Rideau Canal and its associated defensive works were critical elements in the global strategy developed by Great Britain immediately after the Napoleonic Wars in Europe and the War of 1812 in North America. The two wars demonstrated to British political and military leaders the importance of a military defensive system to protect their far-flung global interests.

In North America, the key to the defence of Canada lay in a transportation route from Montréal to Lake Ontario, more secure than the St. Lawrence River, to supply the vital naval base at Kingston. When the British Government examined the defence of British North America, two Canadian projects were sanctioned: the Rideau Canal and the Kingston harbour fortifications.

*12 The view from Fort Henry of the naval dockyards, the entrance to the Rideau Canal and the town of Kingston.*

This was the context for the British decision to invest enormous financial resources in the construction of the Rideau Canal and its associated fortifications. At stake was the future security and

expansion of British political and commercial interests on the North American continent. This was also the context for approval of locks large enough to accommodate steam-powered vessels. As historian Robert Passfield remarks, "steamboat navigation provided the British forces with a speed of movement superior to that enjoyed by the Americans. Had the Rideau Canal not been completed, or had it been constructed as a small gunboat canal, the whole of the military's efforts at engineering the defence of Canada would have been undermined."

The ultimate success of this strategy was fundamental to the growth of colonial Canada and, subsequently, its development as an independent nation, spanning the northern half of the continent.

*13 The blockhouse built to protect the locks at Merrickville.*

## *B. Proposed Statement of Outstanding Universal Value*

In concept, design, and engineering, the Rideau Canal is the most outstanding surviving example of an early-19th century slackwater canal system in the world, and one of the first canals designed specifically for steam-powered vessels. It is an exceptional example of the transfer of European transportation technology and its ingenious advancement in the North American environment.

A rare instance of a canal built primarily for strategic military purposes, the Rideau Canal, together with its ensemble of military fortifications, illustrates the significant stage in human history when Great Britain and the United States of America vied for the control of the northern portion of the North American continent.

## *C. Comparative analysis*

The earliest evidence of the development of canals dates back approximately 4 000 years to Egypt and the Middle East. The Grand Canal in China was built in the 4th century B.C.E., with several later extensions. Linking the Yangtze and Yellow rivers to Beijing, it is the longest canal in the world, the first summit level canal and had the first recorded pound lock. The Canal du Midi in France, built in the 17th century, is widely regarded as the first canal of the modern era. It was enormously influential in the design of subsequent canals in Europe, and is, at present, the only canal inscribed on the World Heritage List (although the four lift locks on the Canal du Centre in Belgium are also inscribed). Beginning in the middle of the 18th century, there was a virtual explosion in canal building in Europe. By 1850, 6 500 km of canals had been constructed in England and Wales alone.

Worldwide, canals have been built for three main purposes – irrigation, water control and transportation. The Rideau Canal is a transportation canal. The engineering and construction techniques transferred to North America for the building of the Rideau Canal were based on European canal-building experience but were significantly adapted to meet the needs of the North American environment and the particular design requirements of a slackwater canal. For purposes of comparative analysis, it is most relevant to examine other transportation canals based on the European canal-building experience of the early 19th century, in particular those built in North America.

## *A Masterpiece of Human Creative Genius: The Rideau as a Slackwater Canal*

### Slackwater Canal Experience in Europe

The slackwater concept was used only to a limited degree in Europe. Typically, 18th and early-19th century canals were excavated channels linked to natural navigable waterways, usually rivers. Locks were built in the excavated channels to overcome changes in elevation. While dams were used to control feeder channels to maintain water levels, they were rarely used to create the impoundments required for a slackwater canal. Even though slackwater systems could have been used to a greater extent, builders had the perception that it was more difficult to build and repair locks in natural or impounded watercourses. An additional factor that militated against more slackwater construction was the concern over fluctuations in water levels in slackwater systems, a problem not encountered to the same extent on excavated canals.

The most notable European slackwater system from the early-19th century canal-building era is the Gotä Canal in Sweden (1810–1832). The Gotä used slackwater techniques, with dams creating slackwater sections as part of its navigable route and reservoirs to control water levels. But, it also relied heavily on excavated channels, typical of the more common European canals. Forty-five percent of the total length of the Gotä is man-made. This is in contrast to the Rideau Canal, where only nine percent of the total length is excavated. Even though slackwater sections could have been used for a greater proportion of the length of the Gotä Canal, the builders demonstrated the same reluctance as other European canal builders to implement slackwater design and engineering. Their use of slackwater sections as the primary navigation route speaks to the ingenuity and confidence of the engineers of the Rideau Canal.

A comparison of the Gotä and the Rideau canals provides a perspective on these two slackwater canals from the early 19th century.

| | Rideau Canal | Gotä Canal |
|---|---|---|
| Length | 202,1 km | 190,5 km |
| Excavated channel | 19 km | 87,5 km |
| Slackwater sections | 183,1 km | 103 km |
| Number of locks | 47 | 58 |
| Number of remaining manually operated locks | 44 | 2 |
| Year of completion | 1832 | 1832 |
| Years to complete | 6 | 22 |
| Lock length | 37,8 m[A] | 35,63 m[B] |
| Lock width | 9,1 m | 7,2 m - 7,6 m |

A. Measured in the chamber from the point of the lower sill to the face of the breastwork.

B. Most of the locks are this length measured between the lock gates. However, Mem, Tegelbruket and Söderköping Locks are all 38,6 m.

Both the Gotä Canal and the Rideau Canal were remarkable engineering achievements in the tradition of European canal-building technology of the early 19th century. The builders of the Rideau Canal, however, while using this technology, adapted it and advanced it to create a remarkable slackwater canal system. Moreover, the Gotä Canal has, unlike the Rideau Canal, been modernized to a great extent. Only two of its fifty-eight locks are operated manually, while forty-four of the forty-seven locks on the Rideau are operated using authentic hand-powered winches.

### *Slackwater Canal Experience in North America*

The European experience in canal development inspired a form of 'canal mania' in North America: approximately sixty-five canals were constructed before 1850, chiefly in the eastern United States of America. Most, however, represented a conventional application of European canal technology. American engineers demonstrated a caution similar to that of the European builders with respect to constructing a slackwater canal system. Consequently, no large-scale slackwater canals were built in the United States of America, although some canals used slackwater design for sections of their routes.

The most notable example was the Blackstone Canal, which was constructed from Providence, Rhode Island, to Worcester, Massachusetts, between 1824 and 1828. The Blackstone Canal was a towpath canal, suitable for small, heavily-laden barges, drawn between locks by horses. Forty-nine masonry locks, each 21,3 m long by 3,1 m wide, were built along its 72,4 km route.

There were some short slackwater sections on the Blackstone Canal, but its operators found that these were susceptible to flooding, freezing and low water, causing maintenance and operational difficulties. Clearly, the Blackstone lacked the sophistication of design to manage water flows that was developed for the Rideau Canal.

Due to the emergence of railways in the New England states, the canal closed in 1848 and was abandoned. Very little remains of its original works, much of the stone having been hauled away for other construction uses.

Another historically important American canal was the Schuylkill Canal, built from Philadelphia, Pennsylvania, 160 km along the Schuylkill River to the coal mining area of the Allegheny Mountains. The builders of the canal used excavated channels to bypass rapids and rocky shallows, but, in some locations, dams were built to create slackwater sections in the river. Completed in 1825, the Schuylkill was a towpath canal.

The canal was an immediate commercial success but declined in the late 19th century with the introduction of railways to the area. The State of Pennsylvania acquired the canal in 1931 but saw no economic value in it. Many sections were drained and abandoned. Only a few are still evident today.

In Canada, an early canal project that used elements of slackwater design was the first Welland Canal, built from Lake Ontario to Lake Erie between 1824 and 1829. The route of the canal followed Twelve Mile Creek from Lake Ontario and connected to the Welland River through a series of locks. It then joined the Niagara River above Niagara Falls before reaching Lake Erie.

The use of slackwater design was undertaken to a limited degree on the Welland. Ultimately, however, the slackwater components were abandoned in favour of a series of excavated channels. There are, now, no intact remains of the original slackwater works, and the canal's original line has been abandoned.

The Blackstone, the Schuylkill and the Welland canals are examples of early North American attempts to use slackwater canal-building techniques. None of them, however, was a fully functioning slackwater system. None advanced canal technology as did the Rideau, through its creative and ingenious slackwater engineering.

In considering European and North American examples of the same time period, it is quite clear that no other canal is comparable to the Rideau Canal as a slackwater system. The Gotä Canal was a project of comparable scale but depended much more heavily on conventional excavated channel sections than did the Rideau and has been largely modernized. The Blackstone, Schuylkill and the Welland canals had only limited slackwater elements and have little historic authenticity today. The Rideau Canal is clearly the most outstanding surviving example in the world of an early-19th century slackwater canal, and the best preserved.

### *The Transfer of Canal Technology to North America*

The International Canal Monuments List identifies seven canals as being of technological significance worldwide: "These are the most influential waterways in this document. All are landmarks in the world history of canals." (p. 65) The Erie Canal in the United States of America and the Rideau Canal in Canada are listed among these landmarks, which also include the Grand Canal in China, the Canal du Midi in France, and the Bridgewater, Ellesmere and Birmingham canals in Great Britain.

According to the authors of the list, the Erie Canal "was significant for being the product of the intercontinental transfer of technology." (p. 65) Located between Albany and Buffalo, New York, it was considered a triumph of early engineering in

*The Canal du Midi in Languedoc, France was designed with curved walls to resist the pressure of the earth and allow a larger number of boats into the lock.*

the United States of America and one of the most ambitious construction projects of 19th century North America. Built as an excavated towpath canal, the first Erie Canal was completed in 1825. It included eighteen aqueducts to carry the canal over ravines and rivers, and eighty-three locks with a rise of 177,7 m from the Hudson River to Lake Erie.

Like the Erie Canal, the Rideau Canal is recognized in the International Canal Monuments List as demonstrating the "intercontinental transfer of technology and the adaptation of advanced, highly financed engineering to the circumstances of a developing country." (p. 56) Unlike the Erie, however, the Rideau Canal is a well-preserved example of this early-19th century transfer of technology. Ten years after it was built, the Erie was enlarged, a process that altered the size of the locks and widened and deepened the excavated channel. The Erie Barge Canal, built between 1903 and 1918, bypassed the first and second Erie Canals. While some sections of the original canal have been preserved, the overall authenticity of the original line of the Erie Canal is severely impaired and most of its original engineering structures have disappeared.

A comparison of the two canals resulted in the conclusion by the authors of the list that, "the differing states of preservation of the waterways may well mean that the Rideau, rather than the original Erie Canal, is selected as an illustration of this process of intercontinental transfer and development." (p. 57) In addition, they observed that the Rideau Canal "is particularly important in international terms because it is the only canal dating from the great North American canal-building era of the early nineteenth century that remains operational along its original line with most of its original structures intact." (p. 70)

### *A Technological Ensemble which illustrates a Significant Stage in Human History*

The Rideau Canal is a rare example of a canal that was built primarily for military purposes. Many canals in Europe and North America had some form of military use during their history. The Gotä Canal, discussed earlier, included military components and was viewed as having strategic importance in the defence of Sweden. For the most part, however, canals were built primarily for commercial purposes.

The idea that a canal could serve as an effective and secure military supply route began with the Royal Military Canal in Great Britain. This canal was constructed between 1804 and 1809 during the Napoleonic Wars, along the Romney Marsh in Kent. This 45,1-km excavated canal was considered a third line of defence against the possible invasion of south-eastern England, the Royal Navy and the system of Martello towers along the coastline being the two main lines of defence. The level of importance that British authorities assigned to the Royal Military Canal is questionable. Along its length, the canal was protected by nothing more than earthworks and defensible 'station houses'. Its construction, however, signaled that British military and government leaders had grasped the concept of the use of canals as part of a defensive system. This understanding of the strategic role of canals was transferred to Canada for the construction of the Rideau Canal in the 1820s. It was envisioned by strategists as a major component in the defence of British North America against an attack from the United States of America. In contrast to the Royal Military Canal, it was heavily fortified with blockhouses, defensible lockmaster's houses, Fort Henry and four Martello towers. The willingness of the British to invest

enormous financial resources in the construction and defence of the Rideau Canal clearly demonstrates its fundamental importance in the on-going rivalry for control of the northern half of North America.

## *D. Authenticity*

In addition to its historical and technological significance, the nominated property fulfils the conditions of authenticity set out in Section II E of the Operational Guidelines. The authenticity of the nominated site can be attributed, in large measure, to the high degree of engineering skill and workmanship in the construction of the original engineering works, fortifications and buildings. In addition, ownership of the nominated site by the Government of Canada since the later decades of the 19th century has been a major factor in the survival of original structures and ensembles of structures, and their high state of conservation. Aspects of the Rideau Canal as they relate to the conditions of authenticity set out in the guidelines are described below.

## *1. Authenticity in form and design*

### *The Slackwater System*

The Rideau Canal, as a slackwater canal system, has a high degree of authenticity, since the original plan and layout of the route, as well as the depth and width of channels, have remained completely intact. During construction, watercourses and adjacent lands along the route were significantly modified by the construction of dams and locks. Rapids, rocky shallows and swamps were flooded to create navigable channels, lakes and rivers. These features all remain in evidence today.

*Large areas were flooded during the construction of the canal. Dead tree stumps are still visible in many locations.*

### Engineering Works

### *Locks*

The original forty-seven lock structures of the Rideau Canal have retained their locations and dimensions as built. In the 1880s, two locks were built at Beveridges Lockstation as part of the Tay Canal. They also have retained their locations and dimensions as built. To facilitate the road crossing of the canal at Smiths Falls Combined Lockstation, a single-chamber concrete lock was built in the 1970s in proximity to the original three locks in flight, which have been preserved in their original form and location.

Including the two locks at Beveridges and the single-chamber lock at Smiths Falls, there are now fifty lock chambers on the canal. Forty-one of them are classified as Level 1 cultural resources, and two are Level 2 cultural resources, according to the Parks Canada Agency's *Cultural Resource Management Policy*. These numbers are indicative of the high level of authenticity of the Rideau Canal's locks. (CRM levels are explained in chapter 2, section A).

### *Lock Gates*

Due to deterioration of the wood from harsh winters and regular use, the timber-frame gates on the Rideau Canal have a life span of approximately twenty to twenty-five years. This frequency of replacement is similar to the replacement schedule during the canal's historic period. Replacement gates are manufactured by skilled Parks Canada Agency craftsmen, who pattern the new gates after the original design.

*Gates have a life span of up to twenty-five years. New gates are made by Parks Canada Agency staff, following the design of the originals.*

### *Dams*

With very few exceptions, the canal's dams, consisting of earthen embankments, stone masonry dams, spillways and weirs, exist today in their original locations and still play their original roles in creating the slackwater system. In response to water management and public safety requirements, some dams have undergone varying degrees of replacement.

There are seventy-four dams along the Rideau Canal, of which twenty-three have received a CRM Level 1 rating, indicating their authenticity with respect to form and design. Fourteen dams have received a CRM Level 2 rating. The most significant dam engineering achievement on the canal was the seven stone arch dams built as part of the original plan. All of these survive in their original form and design.

*The Jones Falls weir is part of the complex system of dams at this lockstation.*

### *Bridges*

When the Rideau Canal was built in the wilderness of eastern Ontario, there was virtually no need to include bridges in the design of engineering works for the lockstations. As the population of the area increased and the road system developed, swing bridges were built at a number of lockstations to cross the canal. Twelve such bridges are included in the nominated property and together demonstrate the evolution of bridge form and design. Three of the twelve are original steel swing bridges. They are located at Burritts Rapids Lockstation (1897), The Narrows Lockstation (1898) and Long Island Lockstation (1903) and classified as CRM Level 2 resources. Four of the original timber bridges were replaced using authentic designs. The remaining five bridges are steel replacements that were

*Authentic designs were used to construct the king post swing bridges found today at some lockstations.*

installed to meet vehicle traffic needs or because of the physical condition of the originals.

### *Lock Operating Mechanisms*

When the canal opened in 1832, three different operating mechanisms were used, all operated by hand-powered winches. In addition, hand-powered winches were used to operate the sluice valves for the locks. These operating systems are still in use today at most locks on the canal. Only three of the canal's fifty locks now have hydraulic/electric operating systems for gates and sluices. These are Black Rapids, Smiths Falls Combined, and Newboro.

*Lock gates and sluice valves are still operated using hand-powered winches.*

### *Canal Buildings and Fortifications*

Twenty-three buildings associated with the nominated property date from the construction period and demonstrate the strategic military purpose of the canal. They have been assessed under the CRM Policy as Level 1 resources. In addition, there are buildings from the post-construction period included in the nominated property. Their form and design reflect the evolution of the property, the different periods of their construction and the specific functions that they were intended to serve. Sixteen of these buildings are CRM Level 2 resources.

The CRM Level 1 buildings include the fortifications at Kingston and the canal's blockhouses and defensible lockmaster's houses. In form and design, Fort Henry and the four Martello towers are as built in the 19th century, except that the main floor of both Shoal Tower and Cathcart Tower is now missing and partition walls of the storage level have collapsed. Of the six blockhouses built to defend the Rideau Canal, four survive (Merrickville, The Narrows, Newboro and Kingston Mills). Although they were adapted for other uses when no longer needed for defensive purposes, all have now been restored to their original appearance.

The defensible lockmaster's houses were small, square, one-storey stone buildings, with small window openings and incorporating loopholes for rifle fire. When it became clear that they were no longer needed for defensive purposes, they were altered to make them more habitable. Many were enlarged through the addition of a second storey. A large number of these houses survive with their original form and design retained as part of the adapted structure.

The CRM Level 2 buildings associated with the nominated property date from later in the 19th century to the 1930s. Following the military era, additional houses were built for lockmasters, and several lockmaster's houses were built in the first decades of the 20th century. They are all similar in design: plain, rectangular, two-storey frame

*Later in the 19th century, stone gave way to wood for the construction of lockstation buildings.*

structures. Also in the early 20th century, a few houses were built for the accommodation of canalmen. They resembled the lockmaster's houses of that period, but were smaller in size.

In the early days of the canal and for many years thereafter, lockmaster's houses were the lockstation offices as well. In the late 19th century, buildings intended to serve as separate lockstation offices were introduced. The lockstation office at Davis was built in 1875 and, in design, was similar to a domestic building. In contrast, the lockstation office built at Ottawa Locks in 1884 is, despite its small size, an impressive stone-built structure. Purpose-built lockstation offices continued to be constructed up to the 1970s, although a number of lockstation offices in use today were adapted from existing lockmaster's houses.

## *2. Authenticity in materials and substance*

### *Locks*

Nearly all of the Rideau Canal's locks are in their original state of construction with a high percentage of original stone. At the time of their construction, locks had either stone-masonry or timber floors. While it has been possible to retain the stone masonry, the timber floors were replaced with concrete at an earlier time. These evolved lock structures are now conserved in their current state as part of the life-cycle maintenance program.

In the past, the periodic stabilization of lock walls was undertaken by dismantling the walls and reconstructing them. The Parks Canada Agency has since adopted new maintenance techniques that conserve original stone-masonry lock walls. The current technology uses core drilling and pressure grouting techniques so the wall can be stabilized in place. As a result, there is less damage to original stone blocks and greater protection of original fabric. When, however, it is necessary to replace stone blocks, it is normal practice throughout the canal to use new stone similar in composition to the original.

Only one original lock (Black Rapids) has been entirely rebuilt with the use of concrete, and five locks (Ottawa Locks 1–5) have been rebuilt with stone matching the original.

*Original masonry floors survive at many locks. The timber floors used at some locks have been replaced by concrete.*

*New techniques are now used for grouting, causing less damage to original fabric.*

### *Gates*

The wood originally used for building lock gates was native oak, but now, when gates are replaced on a twenty to twenty-five year cycle, British Columbia Douglas Fir is used, due to the scarcity of oak large enough to fashion the timbers. Iron and steel fittings are conserved from one set of gates to the next to the greatest degree possible. When replacement pieces are required, the original material and form are duplicated.

*Originally made of oak, lock gates are now made of Douglas Fir due to the lack of oak of sufficient size.*

### *Dams*

Twenty-three of the seventy-four dams of the Rideau Canal, including the seven stone arch dams, retain their original materials. Because of the importance of the dams as water control structures and in order to meet evolving safety standards for such structures, some of the original stone- masonry dams have been replaced over time using concrete. Fourteen of these early concrete dams represent the evolution of canal engineering and have been classified as CRM Level 2. The canal's earth embankment dams retain their original materials, including their clay puddle cores, but have, in some instances, been reinforced with additional earth or stone.

### *Bridges*

The oldest surviving bridges on the canal date from the 19th and the early 20th centuries and were made of steel. When repairs are necessary, steel is used. The timber bridges now found on the canal are, in design, authentic replacements of the originals and use authentic materials to the greatest degree possible.

### *Lock Operating Mechanisms*

As components of lock operating mechanisms age and wear, they are repaired to conserve original material such as timber, cast iron, wrought iron and steel. When necessary, they are replaced using authentic materials.

### *Canal Buildings and Fortifications*

Most buildings dating from the construction period of the canal are made of stone, although the four surviving blockhouses were stone on the first level, with a frame second level. The fortifications at Kingston are stone, although the four Martello towers have wooden roofs. Of the two lockstation offices dating from the 19th century, one is stone, the other, frame. For the most part, the 19th century alterations made to canal houses consisted of adding to them a frame second storey. Houses built in the early 20th century are frame.

Repairs made to these buildings aim to conserve the original material as much as possible; if replacement of fabric is necessary, the original materials are duplicated.

## *3. Authenticity in use and function*

In 2007, the Rideau Canal will celebrate its 175th year of continuous operation. Over its entire history, the transportation function of the canal has been maintained. While military and commercial uses have given way to recreational boating, the experience of using the canal, travel distances, and travel time have remained the same. Today's pleasure boater experience the process of 'locking through' the canal in much the same way that the earliest travellers did.

By the 1860s, Fort Henry and the four Martello towers, and the blockhouses and defensible lockmaster's houses along the canal were outmoded for defensive purposes although some buildings continued to be used by the military, in Fort Henry's case until after the First World War. Today, several of these fortifications are used for the interpretation of their original military function. Fort Henry is used to convey the life of the garrison stationed there in 1867. Fort Frederick and Murney Tower are museums and part of their programming is devoted to the history and significance of the fortifications at Kingston. Kingston Mills Blockhouse, the defensible lockmaster's houses at Jones Falls and Chaffeys, and the Merrickville Blockhouse present the military function of these small-scale fortifications.

## *4. Authenticity in traditions, techniques and management systems*

Built by the British government, the Rideau Canal was transferred to the Province of Canada, and then to the Dominion of Canada in 1867. The British government retained possession of Fort Henry and the Martello towers until 1870, at which time they, too, were transferred to the Canadian government. Both the canal and the fortifications are still the responsibility of the federal government, and this continuity of government ownership has been a major factor in the survival of original structures and ensembles of structures, and their high state of conservation.

For nearly 175 years, without interruption, the Rideau Canal has been an operating waterway, fulfilling its original function as a transportation route between Ottawa and Kingston. While management methods have evolved over time, there has been considerable continuity in the operation of the canal. For example, the job of the lockmaster has existed since 1832, and lockmasters of the Rideau continue to exercise their responsibilities in a manner that is continuous with their line of predecessors, and a part of a long tradition of service to the public. Moreover, most locks are still operated in the traditional way with hand-powered winches used to open gates and sluice valves.

The property is managed in accordance with conservation principles, which means that, to the greatest degree possible, techniques used in the maintenance and conservation of the cultural resources of the property respect the integrity of the original workmanship. Cultural resources that demonstrate the authentic techniques of construction are conserved. While lock gates and other wooden structures must be re-structured or replaced from time to time, the designs used are authentic. Modern tools are often used for efficiency, but the methods of layout and fabrication follow the original construction techniques.

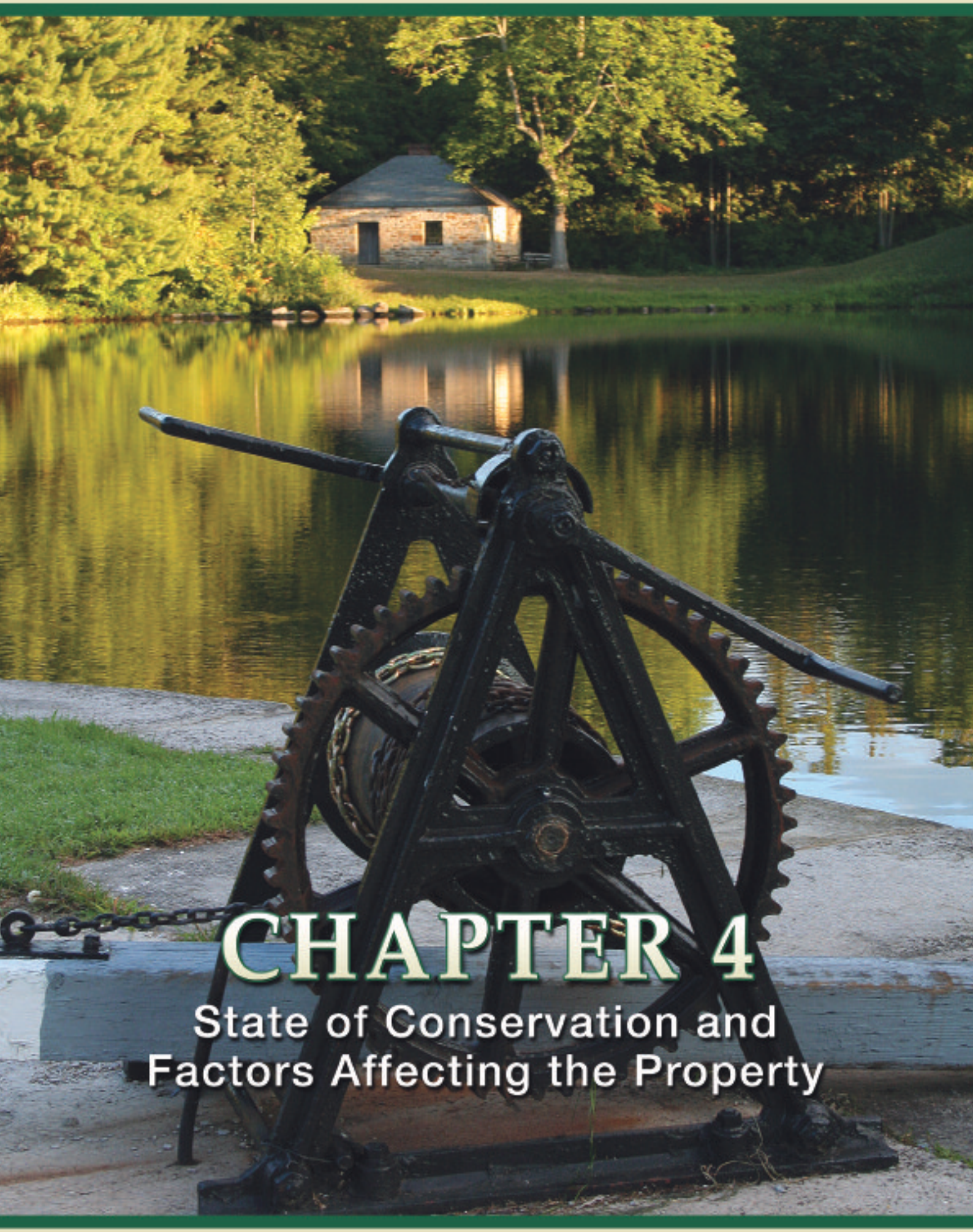
## *5. Authenticity in location and setting*

The course followed by the Rideau Canal along its 202-km route from Ottawa to Kingston is unchanged, but the setting through which it passes has, in some areas, evolved considerably since the canal was completed. The Rideau now passes through cities and towns that were small communities in 1832: Ottawa, Merrickville, Smiths

Falls and Kingston. Extensive farms are found along the route, particularly in the region between Ottawa and Smiths Falls. Cottage and resort development has taken place, notably in the area of the Rideau lakes. Nevertheless, almost half of the canal's shorelands exists today in a natural state.

The location of the canal's twenty-four lockstations is also unchanged as is the location of the various Level 1 and Level 2 buildings and dams dating to the 19th and the early 20th century. In the case of the fortified lockmaster's houses and the blockhouses, this means that their defensive function is still clearly evident. The grounds around the locks are better maintained than in the 19th century and, in contrast to their treeless state in the construction period, lockstations now are well-treed, especially those outside of urban settings.

Except for Cathcart Tower, located on an uninhabited island off the shore from Point Henry, the setting within which the Kingston fortifications are found has changed considerably as the city has grown around them. Property to the north of Fort Henry has been developed. Shoal Tower, set in the midst of Kingston Harbour, is bordered by a public marina. Fort Frederick is just south of the extensive campus of the Royal Military College of Canada and the Queen's University campus is to the north of Murney Tower. Because of their locations on the water, the fortifications are, however, still understandable in terms of their original function. They exist today with their geographic distribution, tactical logic and fields of artillery fire immediately observable.



# CHAPTER 4

## State of Conservation and Factors Affecting the Property

# 4. State of Conservation and Factors Affecting the Property

## *A. Present State of Conservation*

The following table describes the present state of conservation of the cultural resources of the nominated property. The information on the condition of the cultural resources of the Rideau Canal is a product of the canal's asset monitoring program, undertaken by professional engineers working in the asset management function. Each year, one-third of the canal's assets are thoroughly inspected and the results are entered into the Asset Management System. The information on the fortifications at Kingston is based on the Parks Canada Agency's 2002 evaluation of the state of commemorative integrity of these cultural resources. The evaluation was part of the Parks Canada Agency's program to systematically assess the state of commemorative integrity of all of the sites that it administers. It was undertaken by a multi-disciplinary team of experts qualified to judge the condition of the cultural resources. The condition of each cultural resources is described as good, fair, or poor, as defined in the adjacent table.

| Rating | Criteria |
|---|---|
| **Good** | • Asset is in near like-new condition with few, if any defects.<br>• No risk of accelerated deterioration.<br>• Any defects can be rectified through routine maintenance. |
| **Fair** | • Asset is in normal condition; there is some wear and tear.<br>• Little or no risk of accelerated deterioration.<br>• Any defects can be rectified through routine maintenance. |
| **Poor** | • Asset is below normal condition.<br>• Evidence or risk of accelerated deterioration.<br>• Defects cannot be rectified through routine maintenance. |

Information on recent major repair projects covers the years from 1995 to 2005. Information on forthcoming major repair projects is taken from the Eastern Ontario Field Unit's Long Term Capital Plan for the period 2006 to 2016.

### Baseline Data: Condition of Cultural Resources September 2005

| Cultural Resource | Condition | Comments |
|---|---|---|
| **Ottawa Lockstation** | | |
| Eight locks | Locks 1, 2, 5, 6, 8: Good<br>Locks 3, 4, 7: Fair | The lower sill on Lock 8 was repaired in 2005.<br>Routine maintenance. |
| Commissariat building | Fair | Repairs to wooden components and painting scheduled for 2006.<br>Routine maintenance. |
| Lockstation office | Fair | Routine maintenance. |
| Archaeological features | Fair | Routine maintenance. |

| Cultural Resource | Condition | Comments |
|---|---|---|
| **Hartwells Lockstation** | | |
| Two locks | Fair | Routine maintenance. |
| Defensible lockmaster's house | Fair | Routine maintenance. |
| Storehouse | Fair | Routine maintenance. |
| Lockman's house | Good | Routine maintenance. |
| Stoplog weir | Fair | Routine maintenance. |
| **Hogs Back Lockstation** | | |
| Two locks | Fair | Routine maintenance. |
| Earth embankment dam | Fair | Routine maintenance. |
| Lockstation office | Good | Building painted and major repairs to roof in 2001. Routine maintenance. |
| Storage shed | Good | Routine maintenance. |
| **Black Rapids Lockstation** | | |
| One lock | Fair | Routine maintenance. Gate replacement scheduled for 2006. Concrete repairs 2010. |
| Lockmaster's house | Fair | Routine maintenance. |
| Spillway dam | Fair | Routine maintenance. |
| Weirs | Fair | Routine maintenance. |
| **Long Island Lockstation** | | |
| Three locks | Fair | Lock 15 stabilized in 2003. Routine maintenance. |
| Stone arch dam | Fair | Routine maintenance. |
| Manotick Dam | Fair | Routine maintenance. |
| Lockmaster's house | Fair | Routine maintenance. |
| Swing bridge | Fair | Routine maintenance. Conservation of abutments and stringers, and painting, in 2006. |
| **Burritts Rapids Lockstation** | | |
| One lock | Fair | Routine maintenance. |
| Spillway dam | Fair | Routine maintenance. Minor pier and abutments repairs in 2006. |
| Weir | Poor | Routine maintenance. Stabilization and repair in 2006. |
| Swing bridge | Good | Complete conservation in 2005. Routine maintenance. |
| Dam ruins | Not rated | Archaeological resource, no conservation planned. |
| **Nicholsons Lockstation** | | |
| Two locks | Fair | Routine maintenance. Lock 19 grout repairs planned for 2006. |
| Excavated channel | Not Rated | Routine maintenance. |
| Spillway dam | Fair | Routine maintenance. |
| Weir | Good | Routine maintenance. Minor repairs to log checks and wall in 2007. |
| Defensible lockmaster's house | Fair | Routine maintenance. |
| Swing bridge | Fair | Routine maintenance. |

| Cultural Resource | Condition | Comments |
|---|---|---|
| **Clowes Lockstation** | | |
| One lock | Fair | Emergency repair to masonry in lower sill in 2005. Routine maintenance. |
| Stone arch spillway dam | Fair | Routine maintenance. |
| Weir | Fair | Routine maintenance. |
| Defensible lockmaster's house | Fair | Routine maintenance. |
| **Merrickville Lockstation** | | |
| Three locks | Fair | Lock 23 stabilized and conserved in 2002. Routine maintenance. |
| Original dam | Not Rated | Archaeological resource, no conservation planned. |
| Water control dams and weirs | Good | Routine maintenance. |
| Lower and upper basins | Fair | Conservation of upper basin stone masonry in 2002. Routine maintenance. Upper basin walls conservation in 2010. |
| Blockhouse | Fair | Routine maintenance. |
| Storehouse | Fair | Routine maintenance. |
| Merrickville Industrial Complex | Foundry: Good | Routine maintenance. |
| | Industrial Ruins: Poor | Routine maintenance and monitoring will continue. Possible conservation within 10 years based on monitoring. |
| **Kilmarnock Lockstation** | | |
| One lock | Fair | Routine maintenance. |
| Earth embankment dam | Fair | Routine maintenance. |
| Defensible lockmaster's house | Good | Routine maintenance. Porch repairs within 3 years. |
| Swing bridge | Fair | Routine maintenance. |
| **Edmonds Lockstation** | | |
| One lock | Fair | Routine maintenance. Rake, point and grout in 2013. |
| Spillway dam | Fair | Routine maintenance. Rake, point and grout 2012. |
| Weir | Good | Routine maintenance. |
| Earth embankment dam | Fair | Routine maintenance. |
| Lockstation office | Fair | Routine maintenance. |
| **Old Slys Lockstation** | | |
| Two locks | Good | Routine maintenance. |
| Stone arch dam | Fair | Routine maintenance. |
| Defensible lockmaster's house | Good | Routine maintenance. |
| **Smiths Falls Combined** | | |
| Three original locks | Locks 28, 29: Good | |
| | Lock 30: Fair | Routine maintenance. |
| Replacement single chamber lock | Fair | Routine maintenance. Gates and operating system repair 2007. |
| Stone arch dam | Good | Routine maintenance. |
| Defensible lockmaster's house | Fair | Routine maintenance. |
| Canalman's house | Fair | Routine maintenance. |
| **Smiths Falls Detached Lockstation** | | |
| One lock | Fair | Routine maintenance. |
| Lockstation office | Fair | Routine maintenance. |

| Cultural Resource | Condition | Comments |
|---|---|---|
| **Poonamalie Lockstation** | | |
| One lock | Fair | Routine maintenance. Rake, point and grout in 2009. |
| Earth embankment dams | Fair | Routine maintenance. |
| Defensible lockmaster's house | Good | Routine maintenance. |
| **Beveridges Lockstation, Tay Canal** | | |
| Two locks | Fair | Upper lock conserved in 1998. Routine maintenance. Minor repair to lower lock in 2006. |
| Earth embankment dam | Fair | Routine maintenance. |
| Lockmaster's house | Fair | Routine maintenance. |
| **Perth, Tay Canal** | | |
| Bridge | Fair | Routine maintenance. Painting in 2008. |
| Bridgeman's house | Fair | Routine maintenance. |
| Turning basin | Fair | Routine maintenance. |
| **The Narrows Lockstation** | | |
| One lock | Fair | Routine maintenance. Rake, point and grout in 2011. |
| Earth embankment dam | Good | Routine maintenance. |
| Blockhouse | Fair | Routine maintenance. |
| Swing bridge | Fair | Routine maintenance. |
| **Newboro Lockstation (The Isthmus)** | | |
| One lock | Fair | Routine maintenance. |
| Blockhouse | Fair | Routine maintenance. Roof repairs 2009. |
| Excavated channel | Not rated | Routine maintenance. |
| Archaeological Resources | Good | Routine maintenance. |
| **Chaffeys Lockstation** | | |
| One lock | Fair | Routine maintenance. Rake, point and grout in 2007. |
| Defensible lockmaster's house | Fair | Routine maintenance. |
| Lockstation office | Fair | Routine maintenance. |
| Weir | Good | Routine maintenance. |
| **Davis Lockstation** | | |
| One lock | Good | Routine maintenance. |
| Earth embankment dams | Fair | Routine maintenance. |
| Weir | Good | Routine maintenance. |
| Defensible lockmaster's house | Fair | Routine maintenance. |
| Lockstation office | Good | Routine maintenance. |
| **Jones Falls Lockstation** | | |
| Four locks | Lock 39: Good<br>Locks 40, 41 & 42: Poor | Routine maintenance.<br>Stabilization and conservation of locks 40, 41, and 42 by 2009. |
| Stone arch dam | Fair | Routine maintenance. |
| Defensible lockmaster's house | Good | Routine maintenance. |
| Blacksmith's forge | Fair | Routine maintenance. |
| Lower lockstation office | Poor | Routine maintenance. Continue to monitor and repair. |

| Cultural Resource | Condition | Comments |
|---|---|---|
| **Upper Brewers Lockstation** | | |
| Two locks | Lock 43: Good<br>Lock 44: Fair | Routine maintenance.<br>Rake, point and grout, 2010–2012. |
| Earth embankment dams | Fair | Routine maintenance. |
| Defensible lockmaster's house | Good | Routine maintenance. |
| Canalman's house | Good | Routine maintenance. |
| **Lower Brewers Lockstation** | | |
| One lock | Fair | Routine maintenance. Rake and point in 2014. |
| Defensible lockmaster's house | Good | Routine maintenance. |
| Swing bridge | Fair | Routine maintenance. |
| **Kingston Mills Lockstation** | | |
| Four locks | Locks 47, 48 & 49: Fair<br>Lock 46: Poor | <br>Routine maintenance. Lock 46, work identified and awaiting funding. |
| Stone arch dam | Fair | Routine maintenance. |
| Two earth embankment dams | Good | Major stabilization work in 2004. Routine maintenance. |
| Weir | Fair | Routine maintenance. |
| Blockhouse | Fair | Routine maintenance. |
| Lockmaster's house | Good | Routine maintenance. |
| Lockstation office | Good | Routine maintenance. |
| **Fort Henry, Kingston** | | |
| Redoubt | Poor (conserved sections-good) | Major conservation program 2004 – 2007. Routine maintenance. |
| Advanced battery and glacis | Fair | Routine maintenance. |
| West and east branch ditches | Fair | Routine maintenance. |
| West and east branch ditch towers | Poor | Conservation planned in 2008. |
| West and east commissariat stores | Good | Roof conservation in 2003. Routine maintenance. |
| **Fort Frederick, Kingston** | | |
| Martello tower | Good | Major conservation program completed in 2000, including roof repairs. Routine maintenance. Painting of wooden portions in 2007. |
| Earthworks | Fair | Routine maintenance. Masonry repairs pending. |
| Masonry curtain wall. | Good | Masonry repairs completed in 2004. Routine maintenance. |
| Fortified guard house | Good | Routine maintenance. |
| **Cathcart Tower, Cedar Island** | | |
| Martello tower | Poor | Design specification documents completed. Awaiting funding. Twice-yearly monitoring for stone movement. |
| **Shoal Tower, Kingston** | | |
| Martello tower | Good | Major conservation program completed 1997. Routine maintenance. Twice-yearly monitoring for stone movement. |
| **Murney Tower, Kingston** | | |
| Martello tower | Good | Multi-year conservation program completed in 2004. Routine maintenance. Twice-yearly monitoring for stone movement. |

## *B. Factors affecting the property*

### (i) Development Pressures

Development pressures related to private nearby lands affect some areas along the route of the Rideau Canal. Since the 1950s, residential development has taken place on sections of shore lands, particularly immediately south of Ottawa. During the same period, the Rideau Lakes area has experienced considerable cottage and, more recently, housing development. However, almost half of the canal's shore lands remain in a natural state and are subject to minimal development pressures.

*Extensive sections of the canal's shoreline retain their 19th century appearance.*

Individually, Fort Henry and the four Kingston Martello towers, within their buffer zones, are not subject to development pressures. An issue of potential concern arises in connection with their having been planned as a defensive system with overlapping fields of fire. Ensuring a clear visual understanding of their interconnectedness, given the urban setting in which they are found, entails protecting the existing viewscapes from the construction of inappropriately placed modern structures.

*The strategic relationship of the Martello towers and Fort Henry is still clearly visible.*

### (ii) Environmental Pressures

The slackwater sections of the Rideau Canal, although generally healthy, are subject to a variety of ecological stresses such as storm water discharge, agricultural run-off, and the effects of the spread of exotic species. The long-term cumulative impact of these stresses is, however, estimated to be moderate, as many are being brought under control by provincial regulation and municipal actions. As the regional population continues to increase, effective management of environmental issues and pressures will be required.

*Farming is an important activity in the region of the canal between Ottawa and Smiths Falls.*

For the canal engineering works and the fortifications in Kingston, the principal environmental pressure arises from the difficult climatic conditions of the area. The climate is hard on limestone construction. The risk of water infiltration combined with the typical freeze/thaw cycle during the winter must constantly be guarded against.

*The climate of the area requires regular monitoring and repair of the limestone structures of the canal.*

**(iii) Natural Disasters**

The nominated property is located in a geographic area that is not prone to natural disasters such as earthquakes and violent storms. The only natural disaster that could constitute a significant threat to the Rideau Canal is a major flood that could damage the dams and, to a lesser extent, buildings and locks. Given the water management regime of the canal, the likelihood of such a damaging flood is remote. In the spring, when flooding is most likely to occur, water levels in the system are reduced prior to the spring run-off, providing the canal with an increased capacity to handle the additional water. The canal has protocols in place to respond quickly to sudden heavy precipitation, directing the adjustment of water flows and levels. Also, a program is now being implemented to study the stability of dams and other water control structures, to ensure that they meet modern dam safety requirements. If structural weaknesses are identified, they will be dealt with through a priorized investment program. Interventions will be consistent with cultural resource management policies and practices.

*Water management is an important activity particularly during the spring run-off.*

**(iv) Visitor / Tourism Pressures**

The nominated property does not experience unmanageable visitor/tourism pressures that could negatively impact its cultural resources. The major tourism attractions, such as Fort Henry and Ottawa Lockstation, can easily serve more visitors without detrimental effects. In most parts of the canal corridor, tourism occurs at a low to moderate level of activity and most slackwater sections and lockstations of the Rideau Canal can accommodate increased boat traffic. The visitation levels at Fort Frederick and Murney Tower are relatively low. Neither Shoal Tower nor Cathcart Tower is open to the public.

*The "locking through" of boats is popular with visitors to the canal's lockstations.*

There are, however, some high-volume locations along the canal, mostly on the Rideau Lakes. The Parks Canada Agency has taken steps to attract boaters away from them by promoting slackwater sections and lockstations with a lower volume of traffic and offering additional services at these alternate locations. Shore power, for example, has recently been installed at certain less busy lockstations, to better disperse boat use in the peak season, mid-June to September.

**(v) Number of Inhabitants within the Property and the Buffer Zone**

Estimated population located within:

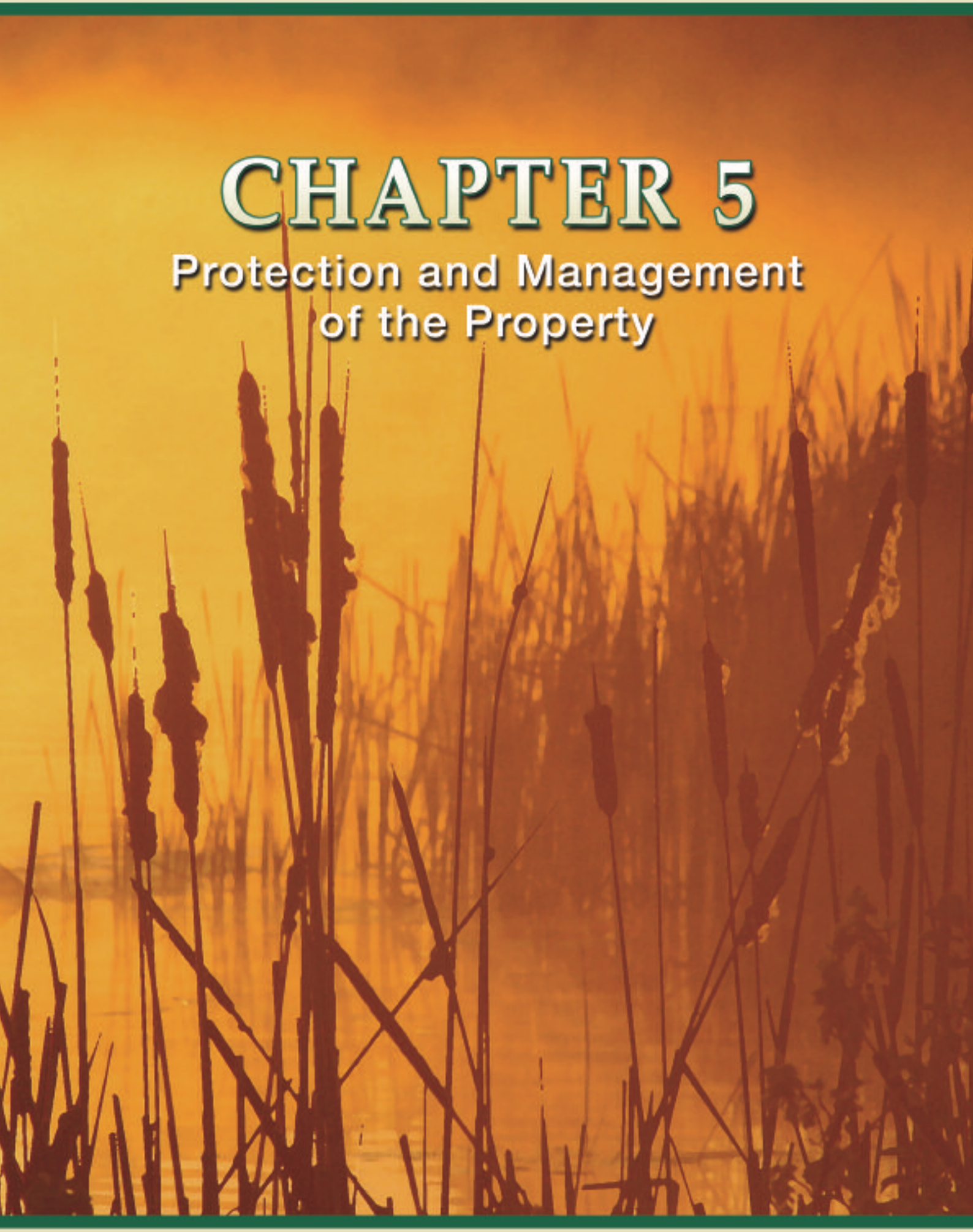
Area of nominated property: 12

**Buffer zone - Rideau Canal**
Because of recent municipal limitations on development, there are now very few people living in the 30-m buffer zone for the Rideau Canal route. The exact number is not known.

Buffer zone – Kingston Fortifications: 0

Total: 12+

Year: 2005



# CHAPTER 5

## Protection and Management of the Property

# 5. Protection and Management of the Property

## A. Ownership

The Government of Canada is the owner of the property by virtue of the *British North America Act* (1867). In 1998, the *Parks Canada Agency Act* established the Parks Canada Agency to operate and manage Canada's national historic sites and national parks, under the direction of a Chief Executive Officer reporting to the Parliament of Canada through a Minister nominated by the Prime Minister.

## B. Protective designation

The nominated property is protected under three federal statutes.

***Historic Sites and Monuments Act, 1952-53***

The elements of the nominated property have been commemorated as national historic sites of Canada under the authority of the Government of Canada's *Historic Sites and Monuments Act* (Appendix N), which empowers the Minister responsible for the Parks Canada Agency to commemorate, acquire and administer historic places pursuant to the act.

Rideau Canal National Historic Site of Canada, 1926

Fort Henry National Historic Site of Canada, 1923

Kingston Fortifications National Historic Site of Canada, 1989. The designation includes Fort Henry, Murney Tower, Shoal Tower, Fort Frederick and Cathcart Tower.

***Parks Canada Agency Act, 1998***

The Parks Canada Agency's responsibilities to commemorate, acquire and administer historic places are defined under the authority of the *Parks Canada Agency Act*.

***Department of Transport Act, 1985***

Pursuant to the *Department of Transport Act*, the *Historic Canals Regulations* are a third legislation mechanism under which the nominated property is protected. The Parks Canada Agency administers the *Historic Canals Regulations*, which apply to the management, maintenance, use and protection of historic canals.

## C. Means of implementing protective measures

The Government of Canada is the sole owner of all the elements of the nominated property and the land on which they are situated. It also owns the bed of the watercourse of the Rideau Canal up to the controlled high water elevation on the shore. The nominated property is protected by a federal planning and regulatory framework, but lands beyond its boundaries fall under provincial and municipal jurisdictions. Accordingly, cooperative strategies are required and used to manage environmental and land-planning issues. The Government of Canada, through the Parks Canada Agency, works with municipal and provincial organizations to ensure the effective management of development adjacent to the nominated property. While each level of government has distinct areas of jurisdiction and responsibility, the overall result is an effective system of protection for the property.

***Role of the Government of Canada***

Pursuant to the *Parks Canada Agency Act*, detailed direction for the agency's management of its responsibilities to commemorate, acquire and

administer historic places is provided in the agency's *Guiding Principles and Operational Policies*. The act also requires that each national historic site have in place a management plan approved by the Minister responsible for the Parks Canada Agency. As directed in the *Guiding Principles and Operational Policies*, a management plan identifies long-term programs to ensure the commemorative integrity of the site through the protection and presentation of the cultural heritage values for which it was commemorated. These values are identified in a commemorative integrity statement, which is the precursor of the management plan.

The *Rideau Canal Management Plan* was completed in 1996 and updated in 2005. Management plans for Fort Henry and the Kingston Fortifications are nearing completion. The Superintendent of the Eastern Ontario Field Unit is delegated the responsibility for developing, implementing and periodically reviewing management plans.

While the *Rideau Canal Management Plan* is a tool for long-term management of the canal, the *Historic Canals Regulations* provide an enforcement mechanism to regulate activities that could harm its cultural values. The regulations provide for permits for activities such as dredging and the construction of marine works on the bed of the canal, and fines and other penalties for contraventions of the regulations. In addition, the *Navigable Waters Protection Act* (1985), administered by the Department of Transport, ensures that any construction activities on or over the canal do not alter or impair the watercourse.

### *Role of the Province of Ontario*

The Province of Ontario contributes to the protection of the lands adjacent to the nominated property through legislation dealing with land-use planning and cultural heritage and environmental protection.

The *Planning Act* (1990) provides direction for municipal land-use planning in Ontario, to ensure that the province's interests are adhered to when local plans are formulated. Matters of interest include the protection of natural and cultural heritage, environmental protection, and appropriate development and growth.

The Province of Ontario provides a framework for protecting cultural resources through the *Ontario Heritage Act (1990)*. This act empowers municipalities to designate buildings, landscapes and archaeological features possessing historic value, and to provide assistance to local heritage interests in implementing programs for inventory and designation. Through this act, municipalities have designated numerous buildings along the Rideau Canal.

The Province of Ontario administers the *Fish and Wildlife Conservation Act*, the *Environmental Protection Act*, the *Endangered Species Act* and the *Provincial Parks Act*. These acts provide for the management and protection of the fish and wildlife resources of Ontario, and regulate water quality, the conservation of threatened species of flora and fauna, and the establishment and management of provincial parks. They are implemented through regulations and through a variety of programs administered by provincial agencies. These legislative mechanisms make an important contribution to the overall environmental quality of the Rideau Canal. For example, the regulations to protect water quality require substantial setbacks from the shoreline for new development. This measure not only protects water quality but also the natural character of the shoreline, which contributes to the heritage character of the Rideau Canal. As well, measures to protect fish, wildlife and threatened species include the protection of their habitats, such as wetlands and undeveloped

*Fishing remains a popular activity along the Rideau Canal because of good wildlife management practices.*

shore lands, both of which are important components of the canal.

### *Role of Conservation Authorities*

Conservation authorities are mandated under the *Conservation Authorities Act* (1990) to ensure the conservation, restoration and effective management of Ontario's water resources, wetlands, woodlands and natural habitats. There are two conservation authorities with jurisdiction in the area of the Rideau Canal, the Cataraqui Region Conservation Authority, encompassing the Cataraqui River watershed from Newboro Lake to Kingston, and the Rideau Valley Conservation Authority, extending from Upper Rideau Lake to Ottawa. The conservation authorities provide a valuable function in protecting the nominated property and adjacent lands by regulating development along the shore and through programs to conserve wetlands, woodlands and natural habitats.

*The extensive wetlands along the Rideau Canal are an important part of the area's natural values.*

### *Role of Municipalities*

Municipalities in Ontario have full authority over land-use planning and development by virtue of the *Planning Act*, which requires the preparation of official plans and zoning bylaws. Municipalities have the authority to enforce the provisions of zoning bylaws through fines and other mechanisms, so that land use and development are consistent with the municipality's official plan.

The most important aspect of managing the setting of the Rideau Canal relates to the immediate intersection of the nominated property and private property at the shoreline of the navigable watercourse of the canal. Municipal planning policies protect the integrity of the shoreline and the natural character of the shore lands, and severely restrict the location, type and scale of development. The most effective municipal land-use policy is the requirement for frontage of between 50 m to 75 m for development lots and a setback of 30 m from the shoreline. This mandatory 30 m setback constitutes the buffer zone for the canal element of the nominated property. In the rural areas, comprising most of the shoreline of the nominated property, generally only single-family residences are allowed, and they must be screened from view so as to be largely hidden from the canal. Additional regulations protect floodplains, wetlands, and other natural features, thereby further reducing the impact of development.

The Parks Canada Agency participates directly in the development of municipal official plans and their associated policies. All official plans for the municipalities bordering the nominated property have specific policies pertaining to the protection of heritage. When official plans are developed and reviewed, a highly cooperative inter-jurisdictional approach is employed to ensure that the resulting plans and policies meet the requirements of all levels of government.

Through the Ontario *Planning Act*, the Parks Canada Agency has the right to intervene in proposed development applications should it believe that the development will, in any way, negatively affect the nominated property. The act establishes the Ontario Municipal Board, to which appeals may be made should a development application be construed as a threat to a neighbouring property. Although the occasions when this has been required have been rare, the Parks Canada Agency has made successful interventions related to proposed developments.

## *D. Existing plans related to municipality and region in which the proposed property is located*

The following summary of municipal official plans concerns the land-use policies in place along the route of the Rideau Canal and in the city of Kingston as they affect and complement the work of the Parks Canada Agency to protect the cultural resources under its jurisdiction.

### City of Ottawa, *Ottawa 20/20*, 2003

The city of Ottawa is the largest municipality along the Rideau Canal. Ottawa's official plan recognises that the Rideau Canal is a significant heritage resource for the city, contributing significantly to the tourism potential of the communities along its shore. According to the plan, the canal's value lies in the combination of historic engineering works and buildings, open spaces and natural features that, together, constitute a cultural heritage resource of outstanding national significance.

Through its official plan, Ottawa is committed to the conservation of the natural environment, cultural heritage, scenic qualities, and recreational potential of the Rideau Canal by:

- Reviewing development applications adjacent to the canal to ensure that the visual quality of the waterway and view from the waterway, as well as natural and cultural features, are evaluated. In this respect, a cultural heritage impact statement is required for any development application adjacent to the canal, which will be reviewed in consultation with the Parks Canada Agency and the National Capital Commission;

- Requiring an assessment of the potential impact of the development on boating safety on the Rideau Canal and on the aquatic environment where significant aquatic natural features are known to exist. The study will be reviewed in consultation with the Parks Canada Agency;

- Prohibiting pits and quarries along the Rideau Canal;

- Prohibiting land uses that require outside storage or large paved areas or that produce noise, fumes and dust.

### Township of North Grenville, *Official Plan*, 1999

The official plan contains policies to protect wetlands and other environmentally sensitive areas. The creation of lots fronting onto the Rideau Canal requires measures to preserve environmentally sensitive features and water quality. These measures serve to protect the slackwater sections of the canal within this jurisdiction.

### Merrickville-Wolford, *Official Plan*, 2004

This township is located on the south side of the canal between Nicholsons Lock Station and Smiths Falls. The official plan includes innovative policies to protect the heritage values of the shoreline through a special heritage designation. The plan also contains policies to protect the natural values of the shoreline and the historic core of the village of Merrickville, which includes the Merrickville Lockstation.

### Township of Montague, *Official Plan*, 2001

The Township of Montague is situated along the north side of the Rideau River between Smiths Falls and Burritts Rapids. The official plan includes policies for the protection of wetlands, endangered and threatened species habitat, and environmentally sensitive areas along the Rideau Canal. These measures serve to protect the slackwater sections of the canal within this jurisdiction.

### Township of Drummond-North Elmsley, *Official Plan*, 2002

This municipality is located on the north side of Lower Rideau Lake and includes the Tay Canal. The official plan recognizes the Rideau Canal as a significant natural and recreational resource. It commits the township to work with the Parks Canada Agency and other agencies and the private sector to protect its heritage and recreational values. The plan contains policies for the protection of natural shorelines and the township's cultural and natural resources adjacent to the canal.

### Town Of Perth, *Official Plan*, 2000

Perth is one of Canada's best-preserved historic towns. Its long history of heritage conservation is reflected in the *Official Plan's* policies for the protection of the town's built heritage. The plan contains objectives for heritage conservation and specific policies to achieve them. Most noteworthy is the policy to enter into heritage easement agreements with owners of designated buildings. As well, the plan requires new in-fill construction to be compatible with existing heritage resources. These provisions ensure that the canal corridor through the town will be protected.

### Tay Valley Township, *Official Plan*, 2003

Tay Valley Township is located along the north shore of Big Rideau Lake. The official plan has specific policies for the preservation, enhancement and revegetation of shoreline areas using native species. The cultural heritage policies require that any new development be planned so as to preserve and enhance cultural heritage resources, and that the Parks Canada Agency be consulted on new development lying within 300 m of Big Rideau Lake.

### Town of Smiths Falls, *Official Plan*, 2005

The Smiths Falls official plan has a number of policy statements specific to the Rideau Canal. One of its objectives is: "To recognize the Rideau Canal as the town's major tourist and recreational asset, and to support and co-operate with the federal government's development plans along the canal." The plan contains an entire section on development policies for lands along the Rideau Canal. These policies are intended to ensure that shoreline development occurs in a manner that is sensitive to the natural, historic and recreational character of the Rideau Canal. As well, the plan states that the town will the take the canal's management plan into consideration when examining development proposals along the canal.

### Township of Rideau Lakes, *Official Plan*, 2004

This township includes the major lakes along the canal: Whitefish, Sand, Opinicon, Clear, Newboro, and Upper and Lower Rideau lakes. The official plan makes specific reference to the Rideau Canal, stating the requirement to have "particular regard to the Rideau Canal Corridor and all its component parts – its scenic elements, its historic value – all its built and natural attributes." The plan has clear objectives for the preservation of cultural heritage resources and significant natural heritage features. The township is committed to working with non-profit organizations and government agencies to achieve common recreational, conservation and tourism objectives.

The plan has comprehensive waterfront development policies with regard to setback and water frontage requirements. These policies are intended to protect the natural, scenic, recreational and cultural values of the water bodies in the township, including the Rideau Canal. Policies for environmentally sensitive development will ensure that new development occurs in a manner that respects the natural environment.

The plan recognizes the value of the township's cultural heritage resources and contains policies to encourage their preservation: "In reviewing development applications, the township will

consider the relationship of proposed development to the contextual environment of existing buildings and landscapes having cultural heritage interest, having regard to the Environmentally Sensitive Development and other relevant sections of this Plan. The Ministry of Culture, as well as the Parks Canada Agency and the relevant conservation authority will be consulted, as appropriate. New development will be planned so as to preserve, complement and enhance cultural heritage resources."

The plan contains comprehensive policies for protecting natural heritage features including wetlands, areas of natural and scientific interest, fish habitat, wildlife habitat, woodlands, valley lands and portions of the habitat of endangered and threatened species.

### Township of South Frontenac, *Official Plan,* 2003

The Township of South Frontenac includes the west shore of Cranberry Lake, all of Dog Lake and the River Styx, much of which is in a natural, undeveloped state. The official plan contains policies for development adjacent to lakes and rivers, including the Rideau Canal, with restrictions on all development within 90 m of them, to protect shoreline vegetation, water quality and the natural appearance of the shore lands. Development or site alterations within 30 m will require an environmental impact assessment to evaluate the potential impacts on fish habitat. The plan also protects the habitats of threatened and endangered species, environmentally sensitive areas and significant wetlands.

### City of Kingston, *Official Plan,* 1991

(currently being updated following amalgamation with adjacent townships)

Kingston's official plan has comprehensive polices to protect cultural heritage resources. The plan includes criteria for designation of buildings and districts, and specific policies for heritage districts and heritage areas. In addition to policies to protect, conserve and enhance the city's heritage resources, the plan has the following strategies:

- Continue the process of designating buildings under the Ontario Heritage Act;
- Ensure that any alterations, additions or renovations to heritage buildings are appropriate;
- Continue to increase awareness of the value of the city's heritage;
- Develop guidelines to assist owners and developers wishing to alter or renovate heritage buildings;
- Maintain an inventory of all designated buildings;
- Develop zoning controls to ensure that new development is sympathetic to heritage buildings within heritage areas.

These cultural and heritage policies are inclusive of the elements of the property within the city limits, including Fort Henry, Fort Frederick, Murney, Cathcart and Shoal towers, and the Kingston Mills and Lower Brewers Mills lockstations on the Rideau Canal. In addition to the heritage policies, the plan contains progressive policies to preserve the natural values of the city, especially the Great Cataraqui Marsh, which is a significant wetland on the Rideau Canal.

## *E. Property Management Plan*

The *Rideau Canal World Heritage Site Management Plan* constitutes the formal commitment of the Government of Canada to manage the world heritage site and its values and specifies how these values will be conserved, protected and presented for present and future generations. The document identifies the world heritage values, the legislative and policy framework for management of the property, the elements of the coordinated management system in place to protect, conserve and present the property, and mechanisms for monitoring and periodic reporting.

The nominated property consists of six elements, the Rideau Canal, Fort Henry, and the four Martello towers in Kingston. Given the nature of the nominated property with its six distinct elements, this *Rideau Canal World Heritage Site Management Plan* provides an overarching management framework to cohesively direct the protection, conservation and presentation of the entire property. This management plan thus complies with the requirements of the *World Heritage Convention* by demonstrating how the outstanding universal values of the property are protected. The Government of Canada will review and update the plan after each six-year reporting cycle.

For operational purposes, the elements of the world heritage site and their cultural resources are managed under the direction provided by the Parks Canada Agency's management plans for each national historic site. The revised *Rideau Canal Management Plan* (2005) and the pending management plans for Fort Henry and the Kingston Fortifications national historic sites of Canada, identify the cultural and natural values of the property that must be protected, and the policies and long-term programs to conserve and present these resources and their values. The implementation of the management plans for the Rideau Canal, Fort Henry, and the Kingston Fortifications is the primary mechanism for conserving and presenting their values and these plans serve equally well for the management of the world heritage values of the property. The *Rideau Canal World Heritage Site Management Plan* will, therefore, be implemented primarily through the Parks Canada Agency management planning system and subsequent planning processes.

The element-specific management plans for the nominated property provide direction for ongoing decision-making and investment of financial and human resources. The principal planning tool for identifying management decisions related to investment of resources is the *Eastern Ontario Field Unit Business Plan*, a five year plan that addresses the highest priority management issues and which is updated annually. With respect to investments in the conservation and maintenance of assets, both cultural resources and contemporary, the business plan is informed by the *Eastern Ontario Field Unit Long Term Capital Plan*. This plan, which is developed by the field unit's asset management group, identifies all investments in asset protection and conservation that will be required on a ten-year forecast. The plan is updated annually and specific interventions are re-assessed for priority based on asset inspections and condition assessments. The key inputs into this plan come from the asset monitoring program of the Eastern Ontario Field Unit. The *Field Unit Business Plan* and the *Long Term Capital Plan* together will identify, place in order of priority, and direct, the fiscal and human resources required to conserve and present the world heritage values of the nominated property. (The Department of National Defence has its own asset management system, which is applied to Fort Frederick and is consistent in terms of the effective management of the assets.)

The *Field Unit Business Plan* and the *Long Term Capital Plan* identify annual work programs for which the Field Unit Superintendent of the Eastern Ontario Field Unit of the Parks Canada Agency is accountable. The Superintendent will be the chief responsible officer for all the elements of the world heritage site except Fort Frederick, which is under the authority of the Base Commander, Canadian Forces Base Kingston.

While the Parks Canada Agency's management plans for the elements of the nominated property will be the primary tool for the protection and presentation of the property, the *Rideau Canal World Heritage Site Management Plan* includes commitments that are not included in site-specific management plans. These commitments relate to the presentation of the nominated property as a world heritage site and to reporting on the property's state of conservation to the World Heritage Committee on a six-year cycle.

## *F. Sources and levels of finance*

Both the Parks Canada Agency and the Department of National Defence are funded through allocations of the Parliament of Canada, while the Province of Ontario provides funding for the presentation, visitor services and maintenance of Fort Henry. The annual allocated funds available for conservation are generally adequate for

maintenance and small-scale repair work. Large-scale projects require special funding. Examples of special funding include the conservation of Shoal Tower, Fort Henry, the Ottawa Reach walls and the Kingston Mills dams. The following table identifies the budget allocations and revenue for the Rideau Canal, Fort Henry and Fort Frederick. All figures are in thousands of dollars.

| | Revenue | Salary | Goods and services | Capital |
|---|---|---|---|---|
| Rideau Canal | 899,0 | 5 642,0 | 1 790,0* | 2 154,0* |
| Fort Henry | 1 000,0 | 1 240,0 | 360,0 | 15 000,0** |
| Fort Frederick | 0 | 80 | N/A | N/A |

** Includes costs for Shoal, Murney and Cathcart Towers*
***$15 000 000 has been allocated over four years from 2002 to 2006 to restore Fort Henry.*

## G. Sources of expertise and training in conservation and management techniques

The Parks Canada Agency has a wide array of expertise available to support the staff of the Eastern Ontario Field Unit in the management of the nominated property to internationally accepted standards and to ensure that they have the training they require to undertake their responsibilities. These specialists include planners, archaeologists, landscape architects, architects, interpreters, historians, ecologists, curators, and engineers. They are located in the Parks Canada Agency Service Centre in Cornwall, Ontario, and in the National Office in Ottawa. Field Unit staff also have access to conservation expertise from the federal Department of Public Works.

Conservation professionals receive their training through university and college programs and are hired because of these skills and capacities. However, there is a significant amount of training that occurs on-the-job, as important knowledge and techniques are passed from skilled worker to skilled worker. In addition, periodic seminars and workshops are held to ensure that employees have sufficient understanding of conservation principles and practices. A good example of such training is the Parks Canada Agency's Cultural Resource Management Policy Orientation Course, which is taken by managers, engineers, technicians and tradespersons.

## H. Visitor facilities and statistics

Along the Rideau Canal, each lockstation provides public washrooms, parking, picnic tables, and visitor orientation and interpretative information. Boaters are able to make use of overnight docking and mooring space. A marked navigation channel with a minimum depth of 1,8 m provides for safe navigation through the canal. Lockstations are located in a variety of settings. Some, like Ottawa and Smiths Falls, are urban, with a wide range of commercial facilities nearby. Most are located in rural areas with few nearby services. There are, however, numerous small communities along the canal where boaters and land-based visitors can find a range of accommodation, shopping and food services.

*The Rideau Canal has long been a popular recreational waterway.*

Fort Henry provides a range of facilities and services for visitors. There are municipal parking and public washrooms adjacent to Murney Tower. Basic visitor services are provided at Fort Frederick. There is no visitor access to Shoal Tower and Cathcart Tower.

### *Statistics*

| Rideau Canal | | | |
|---|---|---|---|
| Year | 2000 | 2001 | 2002 |
| Land-based | 995 375 | 1 408 700 | 1 501 120 |
| Boats | 79 590 | 87 463 | 82 484 |

| Attendance at the partner-operated sites for 2004 | |
|---|---|
| Fort Henry | 120 000 |
| Fort Frederick | 4 600 |
| Murney Tower | 8 000 |
| Bytown Museum | 10 000 |
| Blockhouse Museum | 5 000 |
| Lockmaster's House Museum | 3 500 |
| Rideau Canal Museum | 10 000 |

## *I. Policies and programs related to the presentation and promotion of the property*

As part of its legislated mandate, the Parks Canada Agency is required to present to the public the reasons for the commemoration of the canal and the Kingston fortifications as national historic sites of Canada. The principles for the presentation of the nominated property are stated in the Parks Canada Agency's *Cultural Resource Management Policy*. Active presentation and promotion programs are in place, using a variety of interpretive programming and media to tell the story of the nominated property.

### *Heritage Programming Undertaken by the Parks Canada Agency*

The main elements of the presentation programs undertaken by the Parks Canada Agency for the nominated property are:

- A canal builders' exhibit in the Commissariat building at Ottawa locks;
- Interpretive panels at all lockstations explaining the canal and local history;
- Costumed interpreters at Jones Falls and Kingston Mills;
- Information provided by operations staff;
- An animated blacksmith's forge;
- Additional interpretive panels for special features at Ottawa, Hogs Back, Burritts Rapids, Nicholsons, Smiths Falls Combined, Newboro, along the canal promenade in Ottawa and at the canal turning basin in Perth;
- The *Rideau Canal Edukit* for school groups;
- Publications, including a main brochure, and Jones Falls and Ottawa lockstations walking tour brochures;
- Canal history videos shown at Ottawa, Kingston Mills and Jones Falls lockstations;
- A Rideau Canal website, including a canal construction game, the construction history of each lockstation and a virtual 3-D model, which explains canal technology;
- Group tours available at five lockstations: Ottawa, Merrickville, Smiths Falls, Jones Falls, and Kingston Mills;
- Learning travel and other outreach programs;
- The 'Spirits Rising' theatrical presentation program.

To promote and market the canal, the Parks Canada Agency participates in a number of boat shows in Canada and the United States of America. In addition, the Rideau Heritage Route Tourism Association, a group of approximately twenty tourism partners, promotes the Rideau Canal Corridor as a cultural heritage tourism experience. Active marketing programs communicate tourism and learning opportunities to markets in Canada, North America and the world.

*The blacksmith's shop at Jones Falls is popular with visitors.*

*Educational programs attract school children to the Rideau Canal Museum.*

*Costumed staff are an important part of interpretive programming.*

*Lockstation staff respond to visitors' question about the canal.*

*Interpretive programs include re-enactments of 19th century military activities.*

*School groups are frequent visitors to the canal's lockstations.*

*Interpretive signage is an important source of information for visitors.*

### *Heritage Programming Undertaken by Partner Organizations*

**Fort Henry** is operated by the St. Lawrence Parks Commission, an agency of the Government of Ontario, under an agreement with the Parks Canada Agency. Fort Henry features a military museum, education programs, and costumed performers/interpreters, including the renowned Fort Henry Guard. A school program provides students with a variety of programs related to the history of the fort and the canal. The weekly Sunset Ceremony is a popular event, with the Fort Henry Guard performing century-old bayonet drills and field manoeuvres.

**Fort Frederick** is operated as the museum of the Royal Military College of Canada. The main collection relates to the history of the college and the accomplishments of its graduates. The museum also holds a small collection of material related to the Point Frederick Dockyard and the Royal Navy.

**Murney Tower** is operated by the Kingston Historical Society under an agreement with the Parks Canada Agency. The three floors of the tower house a collection of social and military artifacts of 19th century Kingston, which tell the story of the soldiers and families who lived there. The society also offers educational programs and special events.

**The Rideau Canal Museum** is located in the Woods Mill Complex in Smiths Falls. Through artefacts, models, interactive media and displays, the museum presents the construction of the canal, its role through history and the lifestyles and folklore associated with the canal.

**The Friends of the Rideau**, a cooperating association, has published or reprinted a number of books on the history of the canal.

**The Bytown Museum** is located in the Commissariat building at the Ottawa locks and is operated by an historical society. The museum presents the history of Ottawa and the building of the Rideau Canal. The museum has an active school and outreach program and special events during the summer season.

**The Merrickville Blockhouse Museum** is operated by the Merrickville and District Historical Society. The museum contains a collection of artefacts and archival material related to the settlement history of the Merrickville area.

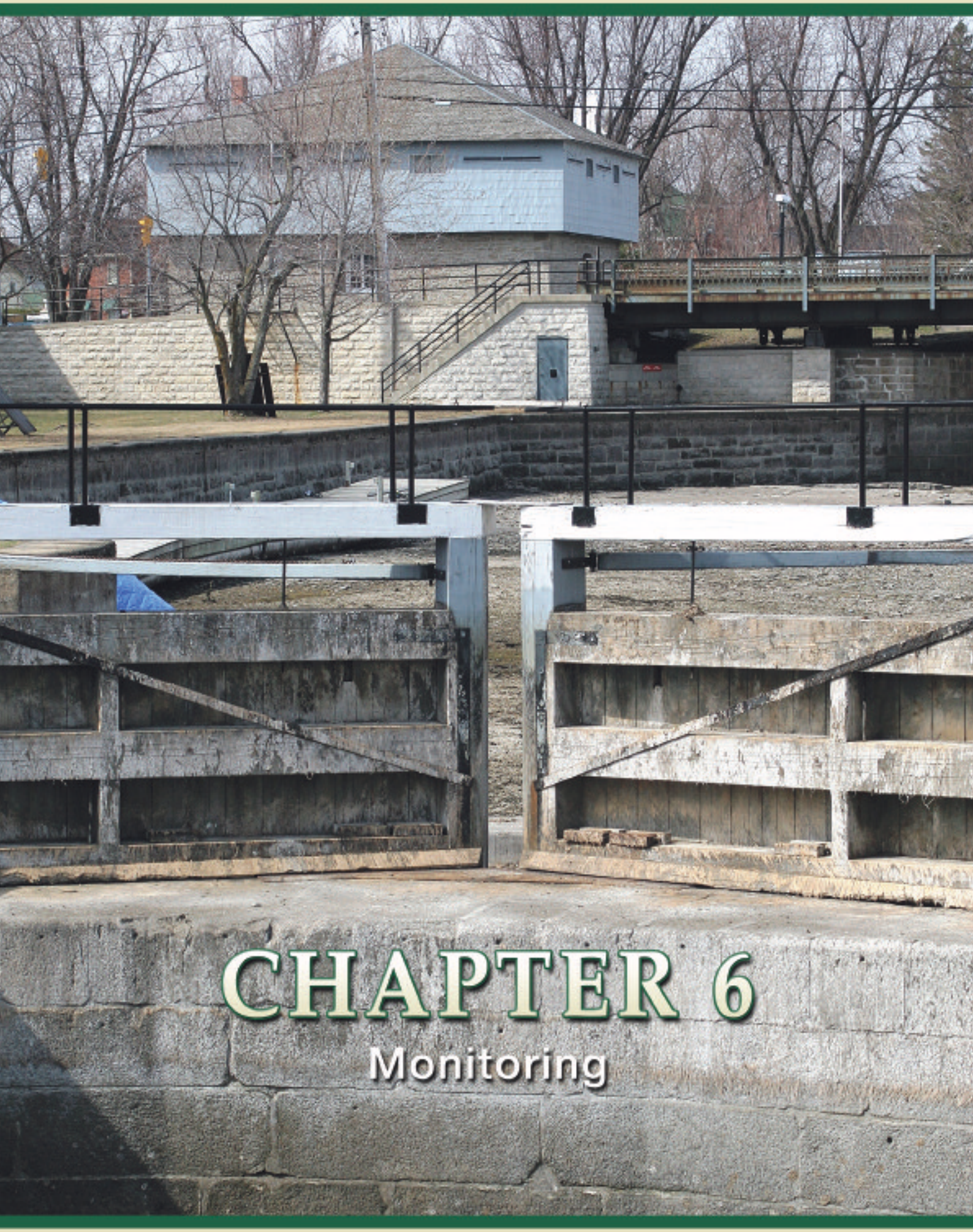
**The Lockmaster's House Museum** is located in the former lockmaster's house at Chaffeys Lock, and is operated by the Chaffeys Lock and Area Heritage Society. The museum has a collection of canal and area-related artefacts and presents the history of the area.

These partner organizations undertake a range of promotional and marketing programs commensurate with the scale of their interpretive programs and budgets. The Parks Canada Agency often participates in joint programs, or provides supporting resources to these partner organizations.

## *J. Staffing levels*

Field unit staff such as engineers, and maintenance and conservation professionals receive their training through university and college programs and are hired because of these skills and capacities. However, there is a significant amount of training that occurs on-the-job, as important knowledge and techniques are passed from skilled worker to skilled worker. In addition, periodic seminars and workshops are held to ensure that employees have sufficient understanding of conservation principles and practices.

A range of other disciplines in areas such as presentation, marketing, administration and visitor activities management are employed locally and provide the necessary skills and capacities to manage the property. Specialized professionals such as historians, archaeologists and conservators are provided to the property from the service centres of the Parks Canada Agency.



# CHAPTER 6

## Monitoring

# 6. Monitoring

## *A. Key indicators for measuring the state of conservation*

| Indicator | Periodicity | Location of Records |
|---|---|---|
| Percentage of canal buildings, fortifications and engineering works in good or fair condition. | Regular monitoring of all cultural resources on a cycle not to exceed three years. Data recorded in the Eastern Ontario Field Unit Asset Management System | Eastern Ontario Field Unit, 34A Beckwith Street South, Smiths Falls, Ontario, K7A 2A8 |
| The authenticity of the slackwater sections of the canal is not under threat from external development along the waterway. | Development proposals are reviewed as submitted for potential impact on the slackwater sections | Eastern Ontario Field Unit, 34A Beckwith Street South, Smiths Falls, Ontario, K7A 2A8 |
| Percentage of visitors who are aware of the world heritage values of the nominated property. | Visitor surveys every five years. | Eastern Ontario Field Unit, 34A Beckwith Street South, Smiths Falls, Ontario, K7A 2A8 |
| The buffer zone of the nominated property is functioning effectively in reducing the impact of external developments adjacent to the property. | Development proposals are reviewed as submitted for potential impact on the nominated property. | Eastern Ontario Field Unit, 34A Beckwith Street South, Smiths Falls, Ontario, K7A 2A8 |
| Visitation trends are measured to identify potential threats to the state of conservation of the nominated property. | Visitation records are maintained annually and correlated with conservation reports to identify impacts. | Eastern Ontario Field Unit, 34A Beckwith Street South, Smiths Falls, Ontario, K7A 2A8 |

## *B. Administrative arrangements for monitoring property*

Superintendent
Eastern Ontario Field Unit
Parks Canada Agency
34A Beckwith Street South
Smiths Falls, ON
K7A 2A8

National Historic Sites Program Manager
Eastern Ontario Field Unit
Parks Canada Agency
35 Centre Street
Kingston, ON
K7L 4E5

Commandant
Royal Military College of Canada
P.O. Box 17000 Station Forces
Kingston, ON
K7K 7B4

## *C. Results of previous reporting exercises*

The Parks Canada Agency has implemented a program to monitor the overall health of national historic sites based on indicators identified in their commemorative integrity statements. The state of the cultural resources identified for the Rideau Canal and the Kingston Fortifications in their commemorative integrity statements, are reported periodically in Parks Canada Agency reports on the state of protected heritage areas.

### Parks Canada Agency, *State of the Parks 1997 Report*

*The State of the Parks 1997 Report* was an early approach to reporting and lacks the level of detail found in subsequent documents. In it, concerns were expressed regarding possible threats to the Rideau Canal owing to the potential effects of change in areas outside the jurisdiction of the Parks Canada Agency.

In response, during the review of the *Rideau Canal Management Plan*, commencing in 2001, these issues were specifically addressed. The revised management plan (2005) identifies strategies to engage stakeholders and other levels of government in protecting heritage values along the canal route through the development practices and protection measures that were explained in Chapter 5.

### Parks Canada Agency, *State of Protected Heritage Areas Report 1999*

In this 1999 evaluation of the state of the Rideau Canal the monitoring and remedial action programs, including the maintenance program, were determined to be good. The reporting exercise concluded that the structures and buildings of the canal were generally in good condition, and that their commemorative integrity was not impaired. Grounds and archaeological sites were identified as being in fair condition, with acceptable or minor impairment. The main concern was the need for an inventory of archaeological resources. In addition, the effectiveness of communication of the heritage values of the canal was evaluated as fair overall, with improvement being shown in the presentation of messages on the national significance of the site.

Since the 1999 evaluation, canal staff and archaeologists have undertaken an inventory of marine archaeological resources. The updated *Rideau Canal National Historic Site of Canada Management Plan* (2005) identifies additional measures that will be taken by the Parks Canada Agency to effectively address areas of concern identified in the 1999 report. Similarly, the management plan provides a strategy and specific actions to effectively communicate the canal's significance.

### Parks Canada Agency, *Evaluation of the State of Commemorative Integrity, Kingston Fortifications*, 2002

Because an extensive, multi-year conservation project was underway at Fort Henry when this 2002 evaluation was undertaken, its cultural resources were not included in the study. The conclusions regarding the four Martello towers were that two (Murney and Shoal) were in good condition, while Fort Frederick was rated as fair and Cathcart Tower as poor. The evaluation recognized that, with the exception of Cathcart Tower, the cultural resources are safeguarded and maintained according to accepted heritage conservation principles and practices.

The 2002 evaluation included an assessment of the delivery of the messages of national significance of the fortifications. Although interpretive programs are in place at Fort Henry, Murney Tower and Fort Frederick, the evaluation rated the effectiveness of communication as poor overall because little effort was made to present the significance of the five sites as a fortification system.

Since the evaluation was done in 2002, further conservation has been undertaken at Fort Frederick, and authorities there identify all the cultural resources as being in good condition with the

exception of the earthworks, which are rated as fair. Although design specification documents have been completed for Cathcart Tower, work is yet to be implemented.

The inadequacies of effective communication concerning the Kingston Fortifications is presently being addressed in the course of management planning for Fort Henry and the four Martello towers.

### **Parks Canada Agency**, ***State of Protected Heritage Areas 2003 Report***

The 2002 evaluation of the Kingston Fortifications was the basis for the information on the site included in the 2003 State of Protected Heritage Areas Report. The report does not, however, include Fort Frederick because it is not under the administration of the Parks Canada Agency.

# CHAPTER 7

## Documentation

# 7. Documentation

## A. *Photographs, slides, image inventory and authorization table and other audio/visual materials*

### *(i) Credits for Illustrations*

Photographs and illustrations of the engineering works, buildings, fortifications, and other canal features are located throughout this nomination document. The credits for those for which the Parks Canada Agency does not hold the rights are listed below.

01. Brewer's Upper Mills: *Upper Lock partly built, Excavations, Embankments etc. in progress*, May 1830, watercolour, Thomas Burrowes, Archives of Ontario.

02. *First Camp Bytown, 1826,* sketch attributed to Lieutenant-Colonel John By, Royal Engineer, McCord Museum.

03. *Locks on the Rideau Canal, Bytown*, steel engraving, W.H. Bartlett, 1841, Library and Archives Canada.

04. *Market Battery and Shoal Tower, Kingston*, John Elgee, 1865, National Army Museum, London.

05. *Fort Henry, Kingston*, watercolour, pen and ink, Captain H.F. Ainslie, 25th Regiment of Foot, 1839, Library and Archives Canada.

06. *View of Perth, 1853*, oil painting, John Field, Matheson House Museum, Perth.

07. *Fort Henry redoubt*, watercolour, George St. Vincent Whitmore, Royal Engineer, 1836, Library and Archives Canada.

08. *Lock, Dam, Blockhouse at the Narrows, Rideau Lake looking towards Kingston*, watercolour, Thomas Burrowes, 1831, Archives of Ontario.

09. *Opinicon Lake, looking to N.W.*, watercolour, Thomas Burrowes, 1845, Archives of Ontario.

10. *The Great Dam at Jones Falls from the West End*, watercolour, Thomas Burrowes, 1831, Archives of Ontario.

11. *Murney Tower, Kingston*, watercolour, John Elgee, 1865, National Army Museum, London.

12. *Kingston Shipyards*, watercolour, James Gray, 1828, Library and Archives Canada.

13. *Merrickville*, Watercolour, Philip John Bainbridge, 1838, Library and Archives Canada.

### *(ii) Image Inventory and Photograph and Audio Visual Authorization Form*

| Id No. | Format | Caption | Date of Photo video | Photographer/ Director of the | Copyright Owner | Contact details of copyright owner rights | Non exclusive cession of |
|---|---|---|---|---|---|---|---|
| 001 | Digital Slide | Nomination Document Cover Shot Jones Falls Lockstation. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 002 | Digital Slide | The flight of eight locks at Ottawa Lockstation is the largest flight on the Rideau Canal. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 003 | Digital | The start of the excavated channel leaving Ottawa locks. Many bridges have been built across the canal since its completion in 1832. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |

| Id No. | Format | Caption | Date of Photo video | Photographer/ Director of the | Copyright Owner | Contact details of copyright owner rights | Non exclusive cession of |
|---|---|---|---|---|---|---|---|
| 004 | Digital Slide | The canal forms an important historic part of the Parliament Hill district. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 005 | Digital | Construction of two earth embankments turned Dows Great Swamp into Dows Lake, a focal point in the heart of Ottawa. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 006 | Digital Slide | View of the excavated channel from Dows Lake to Hartwells Lockstation. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 007 | Digital | Two locks in flight are situated in the excavated channel. There is no dam, but a sluice that allows excess water to bypass the locks is visible in the lower right of the photograph. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 008 | Digital Slide | A house to accommodate a lockman and his family, typical of canal buildings of the era, was built at Hartwells in the 1920's. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 009 | Digital Slide | An aerial view showing the excavated channel leading to Hogs Back Lockstation and the turning basin just beyond the locks at Hartwell. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 010 | Digital | The final stretch of the excavated channel as seen from Hogs Back Lockstation looking north. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 011 | Digital | Hogs Back Lockstation marks the end of the excavated channels that began at the Ottawa Lockstation. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 012 | Digital Slide | Hogs Back is the location of a spectacular set of waterfalls, which was bypassed by the excavated canal section. Hogs Back locks were built to overcome the height of the falls. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 013 | Digital Slide | Looking toward Hartwells from Hogs Back, the elevation rise can be clearly seen. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 014 | Digital | The dams at Hogs Back created a large slackwater section of the Rideau River known as Mooneys Bay, a popular aquatic recreation area. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 015 | Digital | Black Rapids Lockstation. The weir and the start of the dam across the Rideau River are visible to the right of the photograph. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 016 | Digital | Looking north from Long Island Lockstation toward Black Rapids. Wooded shores and wetlands characterize this slackwater section. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |

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| 017 | Digital Slide | The dams at Long Island Lockstation significantly changed the natural course of the Rideau River. The stone arch dam is wide enough to accommodate a public roadway to Nicholls Island. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 018 | Digital Slide | The timber frame gates are fitted into the lock's 'hollow coin', a curved recess in the stone work. The gates close against stone sills to create a seal for retaining water. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 019 | Digital | A manually operated swing bridge, built in 1904, carries the road over the locks. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 020 | Digital | Aerial view of 'The Long Reach', created by the dams at Long Island, as it passes through the town of Manotick. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 021 | Digital | Burritts Rapids lock is at the east end of a long excavated channel built to bypass a set of shallows and rapids, now inundated by 'The Long Reach' slackwater section. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 022 | Digital | Nicholsons Lockstation includes two locks separated by an excavated channel, a unique configuration on the canal. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 023 | Digital Slide | The king post swing bridge, which is balanced on a pintle and pushed by hand, carries a local road over the lock. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 024 | Digital Slide | The lower lock of Nicholsons was protected by the defensible lockmaster's house, strategically positioned on the high bank. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 025 | Digital | The spillway dam, at the western end of the excavated channel, creates a short slackwater section to Clowes Lockstation that allows for the bypass of rocky shallows and rapids. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 026 | Digital | The navigation channel west of the upper lock at Nicholsons leads to a slackwater section and crosses the river below the Clowes dam. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 027 | Digital | The spillway dam at Nicholsons Lockstation with the spillway dam at Clowes and the entrance to the lock visible in the background. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 028 | Digital Slide | Clowes Lockstation, showing the spillway dam and weir stretching across the river. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | |

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| 029 | Digital | The slackwater section from Clowes as it approaches Merrickville Lockstation. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 030 | Digital Slide | This aerial view of Merrickville shows the separation of the three locks by two large basins, a unique configuration where commercial vessels could moor while waiting to be loaded. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 031 | Digital Slide | Merrickville's blockhouse was the largest built along the canal. It is a national historic site of Canada. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 032 | Digital | 'The Depot', originally a storehouse, is used as an interpretive center. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 033 | Digital | The stabilized ruins of a woollen mill. In the mid-19th century, Merrickville was an important industrial community. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 034 | Digital | Passing along the excavated channel above Merrickville locks, the canal enters an extensive slackwater section stretching to Kilmarnock. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 035 | Digital | At Kilmarnock Lockstation, the lock is set along a short excavated channel. The dam at Kilmarnock created a large slackwater section stretching to Edmonds Lockstation. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 036 | Digital Slide | A king post swing bridge spans the lock and carries a county road across the canal excavation. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 037 | Digital | The slackwater section from Kilmarnock to Edmonds begins with a lake-like area of open water through which passes the narrow, winding navigation channel. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 038 | Digital | The approach to Edmonds presents an impressive panoramic view of the lock entrance and the stone arch spillway dam. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 039 | Digital | At Edmonds Lockstation, the lock is set at the end of a short excavated channel that bypasses the shallow rapids. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 040 | Digital Slide | The sweeping curve of the stone arch dam demonstrates the techniques of the engineers and builders. 'Splash boards', seen here,were affixed to the dam to create greater navigation depths. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |

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| 041 | Digital | After the slackwater section above Edmonds, the approach to Old Slys Lockstation is by way of a short excavated channel. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 042 | Digital | A view of the two locks at Old Slys with a high-level railway bridge in the background. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 043 | Digital | The slackwater section above Old Slys is known as 'Smiths Falls Lower Reach'. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 044 | Digital | Despite the construction of many dams in Smiths Falls, the wild nature of the river is still evident. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 045 | Digital | Smiths Falls Combined Lockstation is a complex site that has been adapted to modern needs. The construction of a high level road bridge led to the closure of the original three locks in flight and the installation of a single modern lock. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 046 | Digital | A short slackwater section leads from Smiths Falls Combined to the excavated channel and Detached Lockstation. The walkway on the right crosses a dam. The river branches off to the right. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 047 | Digital Slide | At Detached Lockstation, both a road and railway crossed the canal. A swing bridge carries the road across the excavated channel. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 048 | Digital | The weir across the river creates a slackwater section to Poonamlie Lockstation. In the background is a fixed section of the historic railway bridge. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 049 | Digital | For much of the distance between Smiths Falls Detached and Poonamalie, the slackwater section is an important wetland area, 'The Swale'. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 050 | Digital | This aerial view of Poonamalie Lockstation, built in a long excavated channel, shows the expanse of Lower Rideau Lake, a slackwater created by the dam at Poonamalie. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 051 | Digital Slide | The Rideau lakes were deepened and widened by the construction of dams at Poonamalie. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |

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| 052 | Digital | After the lock at Poonamalie, the excavated channel leads to Lower and Upper Rideau lakes, 30 km of open water. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 053 | Digital Slide | For most of its length, the Tay Canal is a slackwater watercourse. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 054 | Digital Slide | The large turning basin at Perth marks the end of the Tay Canal. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 055 | Digital | The Narrows Lockstation was built at a point where the Rideau Lake narrowed to a width of about 45 m. The dam created a second lake, Upper Rideau, the summit of the canal. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 056 | Digital | The southern end of Upper Rideau Lake, where the canal crosses 'The Isthmus' and its descent to Kingston commences. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 057 | Digital | The Newboro lock is located at the southern end of the Newboro channel and provides entry into the Cataraqui watershed. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 058 | Digital | In this section, the canal passes through a series of continuous lakes that were flooded by the dam at Chaffeys Lockstation. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 059 | Digital | Chaffeys Lockstation was built on a short excavated channel. The dam and weir create a rise of 3,1 m to establish navigable depths on the upstream lakes. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 060 | Digital | The excavated channel at Chaffeys Lockstation leads to Opinicon Lake, whose level was raised by the dam at Davis Lockstation. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 061 | Digital | Stumps from the virgin forests, which were inundated by dam construction, are still evident on Opinicon Lake. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 062 | Digital | The Davis Lockstation was built in a narrow, natural river gorge that connected Opinicon Lake (bottom) and Sand Lake (top). | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 063 | Digital | The locks and dam at Jones Falls Lockstation rise 19 m. It was the most complex construction project undertaken for the Rideau Canal. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |

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| 064 | Digital Slide | The stone arch dam at Jones Falls was the tallest dam built in North America at the time. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 065 | Digital Slide | The blacksmith's forge is the location for demonstrations of 19th century blacksmithing. The stone in the foreground is rubble from the original lock. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 066 | Digital | The route from Jones Falls Lockstation to Upper Brewers Lockstation is a mix of small lakes and natural channels that wind through the hard granite bedrock. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 067 | Digital | Upper Brewers Mills Lockstation is set in an excavated channel with the river passing to the right. A powerhouse (upper right) occupies the site of the original mills. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 068 | Digital | After Upper Brewers, the navigation channel follows the course of the Cataraqui River (top), enlarged by the dam a Lower Brewers Mills. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 069 | Digital | A line of boats navigating the 'River Styx', a shallow winding section of channel. | 1990 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 070 | Digital | At Kingston Mills Lockstation, the terrain dictated a complex layout for the lockstation. The original falls were dammed and the water controlled to support mills and now a powerhouse. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 071 | Digital Slide | The lower lock at Kingston is the final lock on the Rideau Canal. From here, the Cataraqui River flows directly to Lake Ontario. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 072 | Digital Slide | The Cataraqui River estuary broadens into the marshes and then enters the City of Kingston where it forms the inner harbour. | 2005 | Simon Lunn | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 073 | Digital Slide | Innovative in design, Fort Henry was the most important British fortification west of Quebec City. | 2001 | Brian Morin | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 074 | Digital Slide | The Martello tower and associated fortifications. | 2001 | Brian Morin | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |
| 075 | Digital Slide | Cathcart Tower on Cedar Island. Deadman Bay lies between Cedar Island and Point Henry. | 2001 | Brian Morin | Parks Canada Agency | Rideau Canal 34A Beckwith St., S. Smiths Falls, Ontario Canada K7A 2A8 | Y |

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| 076 | Digital Slide | Shoal Tower was built close to the entrance of the Rideau Canal. | 2001 | Brian Morin | Parks Canada Agency | Rideau Canal<br>34A Beckwith St., S.<br>Smiths Falls, Ontario<br>Canada K7A 2A8 | Y |
| 077 | Digital | Murney Tower is operated as a museum by the Kingston Historical Society. | 2001 | Brian Morin | Parks Canada Agency | Rideau Canal<br>34A Beckwith St., S.<br>Smiths Falls, Ontario<br>Canada K7A 2A8 | Y |

## *B. Text relating to protective designation, copies of property management plans or documented management systems and extracts of other plans relevant to the property.*

All elements of the property are designated as national historic sites of Canada under the authority of the *Historic Sites and Monuments Act*, 1952-53. The *Parks Canada Agency Act*, 1998, establishes the agency's management authority for the nominated property. Both acts can be found in the appendices. Copies of the national historic site management plans and conservation policies used in the management of the property are provided in the appendices. Extracts from municipal plans and provincial legislation are also appended.

Refer to section 7 F. for a complete list of appendices.

## *C. Form and date of most recent records or inventory of property*

For the Rideau Canal and its lockstations, refer to Appendix DD–Rideau Canal Asset List (2005).

For the Kingston Fortifications (Fort Henry, Cathcart Tower, Shoal Tower and Murney Tower) all records and technical documents ranging in date from 1995 - 2005 are available at Bellevue House National Historic Site of Canada in Kingston.

For Fort Frederick all records and technical documents ranging in date from 1995 - 2005 are available at Canadian Forces Base Kingston.

## *D. Addresses where inventory, records and archives are held*

Rideau Canal Headquarters
34 a Beckwith Street, South
Smiths Falls, Ontario
Canada K7A 2A8

Bellevue House
35 Centre Street
Kingston, Ontario
Canada K7L 4E5

Canadian Forces Base Kingston
PO Box 17000, Station Forces.
Kingston, Ontario
Canada K7K 7B4

Archives of Ontario
77 Grenville Street, Unit 300
Toronto, Ontario
Canada M5S 1B3

Library and Archives Canada
35 Wellington Street
Ottawa, Ontario
Canada K1A 0N4

McCord Museum of Canadian History
690 Sherbrooke Street
Montréal, Quebec
Canada H3A 1E9

National Army Museum
Royal Hospital Road
Chelsea, London
United Kingdom SW3 4HT

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## *F. List of Appended Documents and Information*

### Appendices Volume 1 – Management Plans and Commemorative Integrity Statements for the Nominated Property

Appendix A
Rideau Canal World Heritage Site Management Plan 2005

Appendix B
Rideau Canal National Historic Site of Canada Management Plan 2005

Appendix C
Commemorative Integrity Statement for Fort Henry National Historic Site 1998

Appendix D
Commemorative Integrity Statement for Kingston Fortifications National Historic Site 1998

### Appendices Volume 2 – Electronic Material

Appendix E
The Cultural Landscape of the Rideau Canal, Phase II Study (CD-ROM)

Appendix F
History of the Rideau Canal (DVD)

Appendix G
Image Library of the Nominated Property

- Maps (1 DVD)
- Photographs (1CD-ROM)
- Slides (30 slides)

Appendix H
The International Canal Monuments List (CD-ROM)

### Appendices Volume 3 – Parks Canada Agency Act, Policies, Regulations, and Reports

Appendix I
Parks Canada Agency Act

Appendix J
Parks Canada Guiding Principles and Operating Policies

- Historic Canals Policy
- Federal Heritage Buildings Policy
- Cultural Resource Management Policy

Appendix K
Department of Transport Act

- Historic Canal Regulations

Appendix L
Federal Heritage Buildings Code of Practice

Appendix M
Standards and Guidelines for the Conservation of Historic Places in Canada

### Appendices Volume 4 – Federal and Provincial Acts, and Associated Plans

Appendix N
Historic Sites and Monuments Act

Appendix O
Navigable Waters Protection Act

Appendix P
Fish and Wildlife Conservation Act

Appendix Q
Endangered Species Act

Appendix R
Environmental Protection Act

Appendix S
Ontario Heritage Act

Appendix T
Ontario Planning Act

Appendix U
Municipal Official Plan Extracts

Appendix V
Provincial Parks Act

Appendix W
Conservation Authorities Act

Appendix X
Strategic plan for the Cataraqui Region Conservation Authority

Appendix Y
Strategic plan for the Rideau Valley Conservation Authority

Appendix Z
Strategic plan for the National Capital Commission

**Appendices Volume 5 – Supplementary Information**

Appendix AA
Parks Canada Agency State of Protected Heritage Areas Reports 1999 and 2003

Appendix BB
State of the Parks 1997 Report

Appendix CC
Eastern Ontario Field Unit Long-term Capital Plan

Appendix DD
Rideau Canal Asset List

Appendix EE
Policies for In-water and Shoreline Works and Related Activities

**Appendices Volume 6 – Published Works Related to the History of the Nominated Property**

Appendix FF
A History of the Rideau Lockstations by Ken Watson

Appendix GG
Building the Rideau Canal: a Pictorial History by Robert Passfield

Appendix HH
For King and Country by Mark Andrews

**Appendices Volume 7 – Navigation Information**

Appendix II
Sailing Directions – Rideau Canal and Ottawa River

Appendix JJ
Brochures

- Rideau Canal
- Fort Henry
- Murney Tower

**Appendices Volume 8 – Navigation Charts**

## *G. Glossary of Terms*

**American War of Independence:** The 1776-1783 military struggle for independence from Great Britain by the Thirteen Colonies, culminating in the establishment of the United States of America.

**Approach:** The channel of water leading to a lock or set of locks.

**Basin:** A man-made area of water bordered by land, and sometimes constructed walls, where vessels can turn or moor.

**Blockhouse:** A defensible military structure, typically built as a two-storey building. The lower storey is of stone, the upper of timber, with portals for artillery and musket fire.

**Bridgeman's House:** A small building constructed as a shelter for the operator of a bridge.

**Battery:** A platform, usually protected by a parapet, which houses artillery and from which it is fired.

**Canadian Shield:** The massive area of Precambrian rock that spans much of the Canadian north. A section of the Canadian Shield, the Frontenac Arch, crosses the path of the southern sections of the Rideau Canal.

**Caponier:** A protected passageway extending into or across a ditch, from which guns can be fired along the length of the ditch.

**Casemate:** A vaulted chamber built in the thickness of the walls of a fortification. Designed to withstand artillery bombardments, casemates were often used as a barrack.

**Chamber (lock chamber):** The area enclosed by two masonry walls and a set of lock gates at each end.

**Channel:** The designated route for vessel navigation, identified by marker buoys and with a guaranteed depth of water.

**Citadel:** A fortress built to protect a town or other strategic site.

**Coffer Dam:** A temporary structure enclosing part of a body of water to allow it to be pumped dry for construction purposes.

**Commissariat:** An administrative arm of the British Army responsible for supply and, in the case of the Rideau Canal, the provision of construction materials.

**Conservation Authority:** An agency established under the Province of Ontario's *Conservation Authority Act*, which is responsible for watershed management.

**Corps of Royal Engineers:** A military unit established by the British Army in the late 18th century.

**Crab:** Winch with a hand crank used to move heavy objects (lock gates and sluices). Also referred to as "crabs and chains" since chains are used to attach the crab to the object to be moved.

**Cultural Resource Management Policy:** A set of principles and directions for the management of historic and cultural buildings, materials and objects managed by the Parks Canada Agency, established under the authority of the Parks Canada Agency Act.

**Dam:** A barrier built across a watercourse to impound water for a specific purpose, such as the creation of a slackwater canal system.

**Defensible Lockmaster's House:** Single-storey stone residential building with loopholes in the walls, built to defend lock installations on the Rideau Canal, as part of its fortifications system.

**Ditch:** A dry trench built as a defensive feature outside a fortified work.

**Draught:** The depth of the hull of a vessel, which dictates the amount of water required for its navigation.

**Excavated Canal System:** A navigable waterway established by digging long ditches, with locks to overcome elevation differences. Feeder channels supply water from natural watercourses.

**Federal Heritage Building Policy (FHBP):** A set of Government of Canada principles and directions, administered by the Federal Heritage Building Review Office, for the management of buildings owned by the Government of Canada, for the conservation of their heritage values.

**Flight of Locks:** A series of joined locks overcoming an elevation of land to permit the passage of vessels.

**Flying Level:** A surveying term referring to the process of taking consecutive survey lines across country.

**Gate(s):** (of a lock) Massive hinged doors built in pairs. When closed they retain water in the lock and are opened and closed to permit the passage of boats.

**Glacis:** The sloping ground in front of a fortified work extending down to open country, cleared of all obstacles to expose an advancing enemy to direct fire.

**Grout:** A thin mortar that can flow or be injected under pressure to seal cracks in stone walls.

**Guillotine Valve (or vertical lift gate):** A gate used in dam design for controlling the rate of flow into or from a canal. A rectangular gate set in guides, within which the gate moves up and down.

**Hog's Back Falls:** A natural waterfall on the Rideau River, which was a major obstacle to the construction of the Rideau Canal. Its name comes from the high ridge of rock in the middle of the falls that resembles the back of a wild boar. The name was adapted over time to 'Hogs Back', when referring to the lockstation.

**Industrial Revolution:** The rapid process of the 18th and 19th centuries by which advancements in technology, organization and financing led to the reorganization of the economies of Europe, from small-scale artisan-based manufacturing to high levels of mass production using factories.

**Keywork:** Shaped stones fitted together, usually on the downstream face of a dam.

**King Post Swing Bridge:** A type of moving bridge whose deck pivots horizontally on an axis.

**Lock:** A watertight chamber with gates. Valves at both ends allow water to be let in, or let out, to raise or lower a vessel from one water level to another.

**Lockmaster:** The overseer responsible for operation of a lockstation.

**Lower Canada:** The name given to Quebec by the British Government to distinguish it from the colony of Upper Canada. Lower Canada became the Province of Quebec at the time of Canadian Confederation.

**Malaria:** A disease caused by a parasite carried by mosquitoes, characterized by recurring fever and chills. Can be fatal.

**Martello Tower:** Originally a European coastal tower mounting guns on its top level, and housing stores and barrack facilities. The British favoured these towers because they were quick and economical to build.

**Masonry:** The assembly of bricks, rubble stone or cut blocks of stone using mortar in the joints between pieces.

**Napoleonic Wars:** A series of major conflicts between France, under the leadership of Napoleon Bonaparte, and an alliance of other European countries. Fought over a time span of two decades, the Napoleonic Wars culminated with the defeat of French forces at the Battle of Waterloo in 1815.

**Navigable:** Having water of sufficient depth to allow for boat travel.

**Ordnance:** A generic term referring to all types of armament, and in particular artillery.

**Pony Truss Swing Bridge:** A bridge with a movable deck that opens by rotating horizontally on an axis.

**Redoubt:** An enclosed fortification.

**Reservoir:** A man-made body of water that allows for water storage.

**Rideau Canal Corridor:** The general linear landscape through which the Rideau Canal passes.

**Sappers and Miners:** Soldiers of the British Army experienced in excavation and construction.

**Scherzer Rolling Bascule Bridge:** A bridge with a horizontal span that rotates on a vertical axis, and with a large counterweight to raise one end vertically. Bascule bridges were designed and patented by Scherzer Rolling Lift Bridge Company of Chicago.

**Sill:** The flat 'floor' at both ends of a lock on which the bases of the gates rests.

**Slackwater Canal System:** A navigable waterway established by the impoundment of a series of natural watercourses through the construction of dams and locks.

**Sluice:** A conduit through which water can flow in a controlled manner.

**Spillway:** A fixed dam designed to discharge surplus water from a slackwater section of a waterway. Also called an overflow dam.

**Stop Log:** Squared timber that can be dropped into slots at the end of a lock, or in a weir, to stop the flow of water.

**Theodolite Traverse:** A surveying process to measure elevation, distance and angles.

**Towpath:** A man-made walkway used by draught animals as they pull vessels through a canal.

**Undertow:** Current below the water's surface moving in the opposite direction to the surface current.

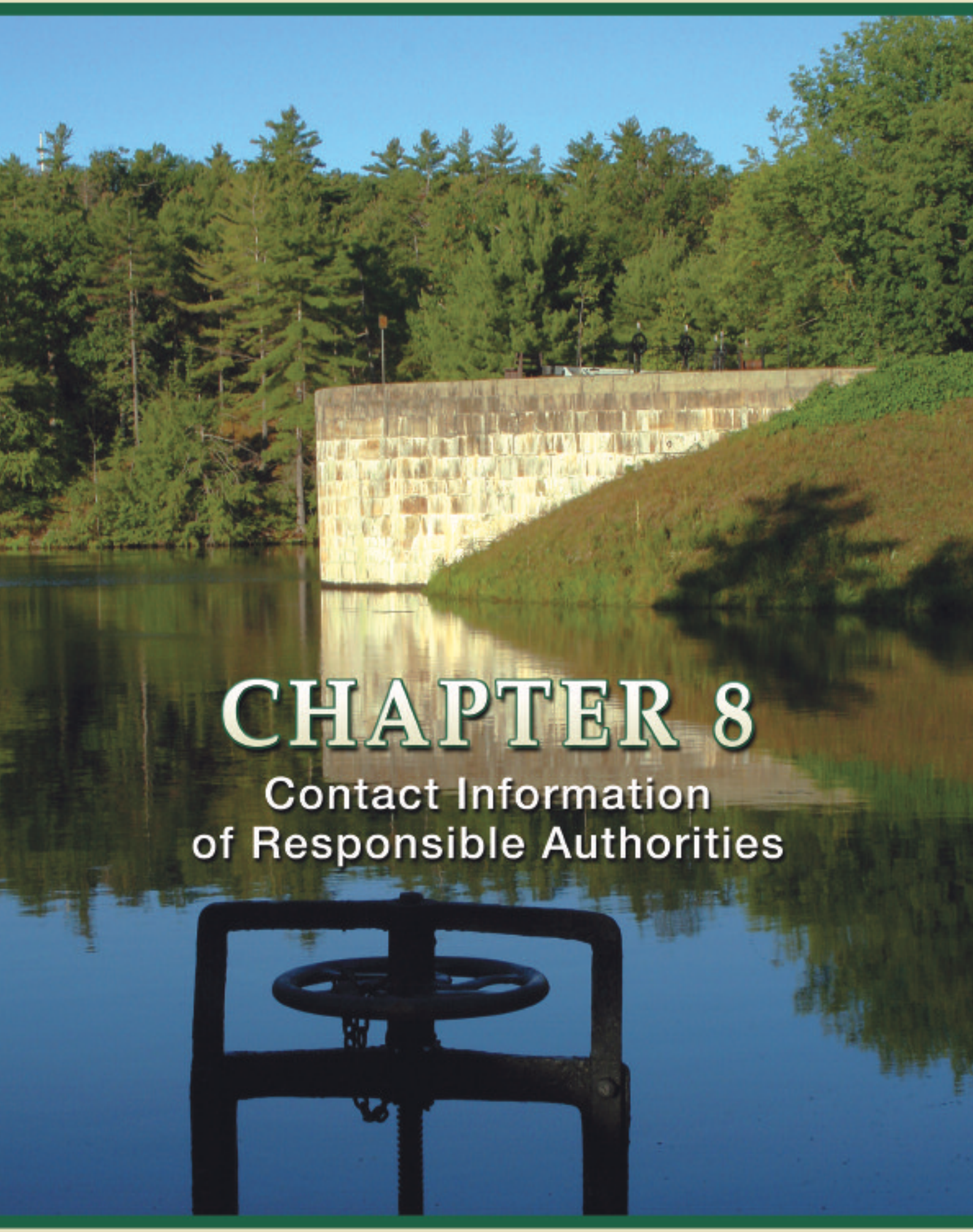
**United Empire Loyalists:** Inhabitants of the Thirteen Colonies, which later became the United States of America, who remained loyal to Great Britain during the American War of Independence. Many resettled to Canada in 1783-1784, following that conflict.

**Upper Canada:** A colony of Great Britain established along the north shore of the Great Lakes with the settlement of the United Empire Loyalists. Later became the Province of Ontario.

**War of 1812:** Conflict between Great Britain and the United States of America fought from 1812 to 1814 in North America, mostly in Upper Canada. Ended with the Treaty of Ghent.

**Weir:** A dam structure with bays or sluiceways that allows the flow of water to be controlled.

**Wetland:** An area characterized by permanently wet soil. Provides important habitat for many animal and plant species.



# CHAPTER 8

## Contact Information of Responsible Authorities

# 8. Contact Information of Responsible Authorities

## *A. Preparer*

Parks Canada Agency
Eastern Ontario Field Unit
34A Beckwith Street South
Smiths Falls, Ontario
Canada K7A 2A8
Tel: (613) 283-5170
Fax: (613) 283-0677
E-mail: rideaucanal-info@pc.gc.ca

## *B. Official local institution/agency*

Superintendent, Eastern Ontario Field Unit
Parks Canada Agency
34A Beckwith Street South
Smiths Falls, Ontario
Canada K7A 2A8

Base Commander
Canadian Forces Base Kingston
PO Box 17000, Station Forces.
Kingston, Ontario
Canada K7K 7B4

## *C. Other local institutions*

National Capital Commission
202–40 Elgin Street
Ottawa, Ontario
Canada K1P 1C7
Tel: 1-800-704-8227
Fax: (613) 239-5063

Friends of the Rideau
1 Jasper Avenue
Smiths Falls, Ontario,
Canada K7A 4B5
Tel: (613) 283 - 5810
Fax: (613) 283 - 2884

Merrickville & District Historical Society
Box 294
Merrickville, Ontario,
Canada J0G 1N0

The Bytown Museum
P.O. Box 523, Station 'B'
Ottawa, Ontario
Canada K1P 5P6
Tel: (613) 234-4570
Fax: (613) 234-4846

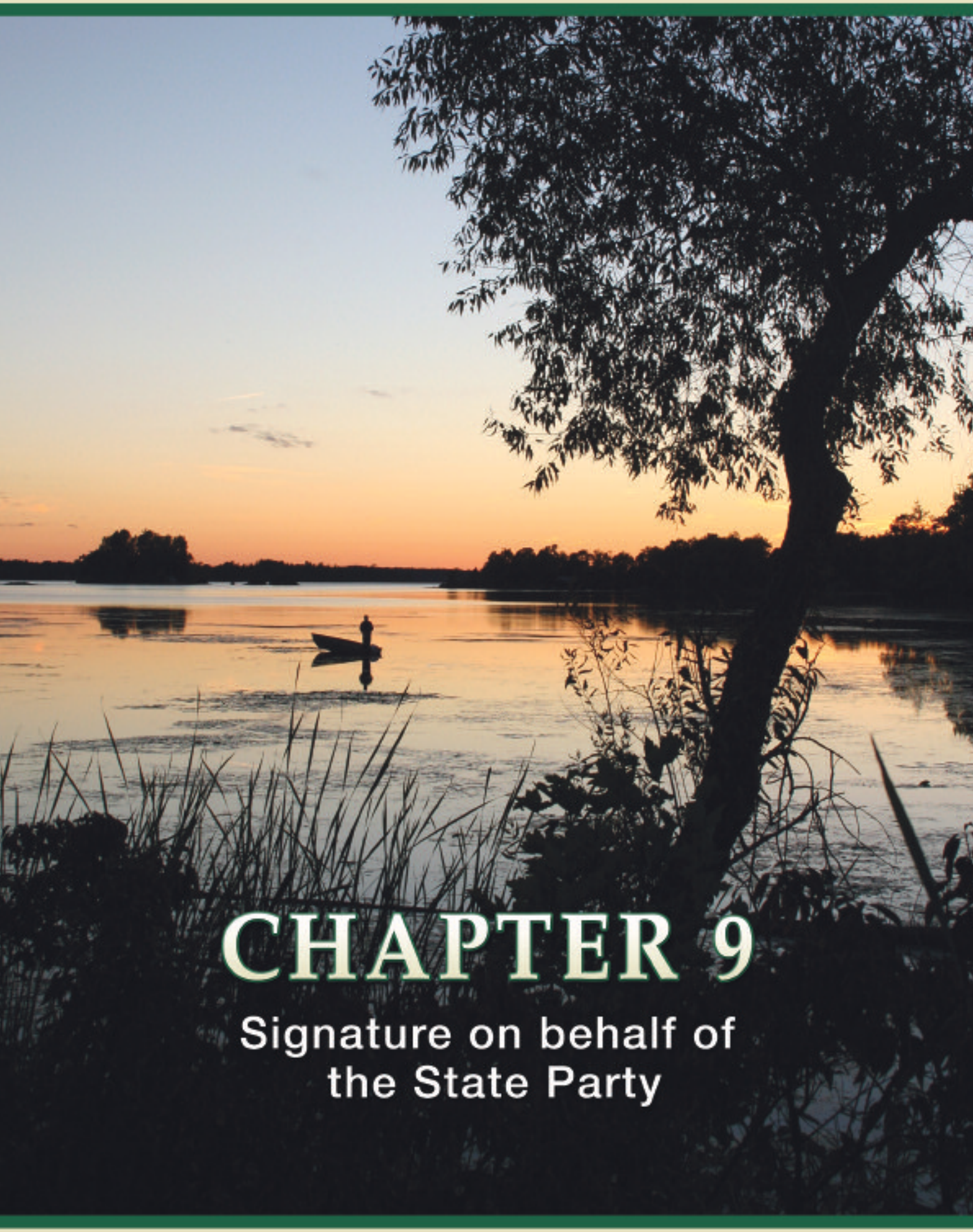
Chaffey's Lock and Area Heritage Society
P.O. Box 50,
Chaffey's Lock, Ontario
Canada K0G 1C0
Tel: (613) 359-5466

Rideau Valley Conservation Foundation
Box 988,
1128 Mill Street
Manotick, Ontario
Canada K4M 1A8
Tel: 1-800-267-3504
Fax: (613) 692-0831

## *D. Official web address*

www.pc.gc.ca/rideaucanal

Superintendent,
Eastern Ontario Field Unit
E-mail: rideaucanal-info@pc.gc.ca



# CHAPTER 9

## Signature on behalf of the State Party

# 9. Signature on behalf of the State Party

**Christina Cameron**
*Head of the Canadian Delegation to the World Heritage Convention*

Date