



Project: R.077244.00

Rehabilitation of Federal Wharf Chambly Canal National Historic Site

Subject: ADDENDUM #1

June 6, 2018

Part 1

Addendum #1 –Responses to questions; precisions or general:

- .1 QRT-09: *Removable Plant Box Item: We see a quantity of 2 planting bins in the plan. The quantity of hardware is indicated as 40 + 20 additional anchors (4 hardware kits are required for the attachment of the plant box). What is the exact amount of plant boxes for the project?*

Response: The quantities have been adjusted on the sheet C27 attached to this addendum.

- .2 QRT-11: *Are there expansion joints provided in the coping wall? If so, what is their location and detail?*

Response: *The details have been added to the plans attached to this addendum.*

- .3 QRT-13: *For the payment measure of 3,000 m² of sheet piles, you say that it will be measured after cutting-off, therefore excluding the 300 mm minimum cut-off strip. On the other hand, in the next sentence, you say that you will pay us only 300 mm of cut-off. The question is as follows: Should we consider an additional quantity of square metres to 3,000 m² to cover the cut-off strip or if the allowance for the cut-off strip is included in the 3,000 m²?*

Response: *The quantities must include the cut-off strip. However, a maximum of 300 mm of cut-off is payable in the payment schedule, all as indicated in section 01 29 00.*

- .4 QRT-16: *In plan "ee520-182837_plans_drawings_634206_structure" on page C22 / 28, "floating docks guide detail", there is no detail on the thickness of the desired plates and their anchors.*

Response: *The details have been added to the plans attached to this addendum.*

- .5 QRT-17: *On plan "ee520-182837_plans_drawings_634206_structure" on page C03 / 28, it is asked to set up a temporary access corridor for boaters with a width of at least 2.5 metres for phase 1 of the work. Would it be possible to install in phase 1, the temporary floating dock access bridge that is proposed in phase 3 instead of the temporary access corridor?*

Response: *. This alternative can be discussed following the contract award. No certitude can be given at this time.*

- .6 QRT-18: *-On plan "ee520-182837_plans_drawings_634206_structure" on page C07 / 28 we are told 15 existing bollards, as also mentioned on page C12 / 28 of the same plan. We would like to validate if there is a concrete base for each existing bollard, because on page C12 / 28, we are told 10 concrete bases to demolish.*

Response: *The notes or details have been added to the plans attached to this addendum.*

- .7 QRT-20 : *In the specifications section 01 56 00 "General requirements Temporary access and protection works", in part 2, paragraph 2.1.2: in the technical specifications of the banners, it is mentioned as type 60% printable / 40% air flow rate. According to information received from various suppliers, the standard would be 70% printable / 30% airflow. Or we are also offered a possibility of 63% / 37% or 65% / 35%. Is it possible to submit a banner price for a percentage other than 60% / 40%?*

Response: Yes, see also the new specifications in Part 2 of this addendum.

Part 2 Addendum #1 –Modifications to the Technical Specifications

1.2 Appendix C

- .1 *The English translation of Appendix C is attached to this addendum.*

1.3 Section « 03 30 00 – Cast-in-Place Concrete »

- .1 *Article 2.3.7 has been added:*

1. Each concrete element (examples: cladding, coping wall, concrete slab, etc.) must be constructed with one single mix formula. The Contractor will not be allowed to change the formula during construction for the same element. For example, cladding walls or coping walls cannot be built with an anti-washout mix formula of concrete and standard cast-in-place concrete. The Contractor must propose one or the other of these mixtures for the same element according to its scheduling or construction methods.

1.4 Section « 01 35 43 – Environmental Protection »

- .1 *Article 1.7 has been added:*

1.7 OTHER ENVIRONMENTAL MITIGATION MEASURES

1. No machinery or small tools (digger, pumps, generator, etc.) may be on standby or parked within the 2-year flood line. It is therefore forbidden, for example, to leave a mechanical shovel on the jetty or the parking lot of the jetty for an extended period when it is not used (evenings, weekends, etc.).
2. Delineate in the field work areas, including those for the machinery traffic. Protect existing vegetation on the bank and along the shoreline, except when existing vegetation is being replaced.
3. It is not permitted to keep animals captive. The containment curtain can be installed at the beginning of the project in September. Its installation must be done in such a way as to scare away the fauna.
4. Within the containment and work areas, previously isolated with the containment curtain, carry out a wildlife tracking campaign. All animals must be released into their habitat outside the work area as soon as possible.
5. Regularly verify the effectiveness of the containment curtain in preventing wildlife from entering the water workspace. Make the necessary corrections, if necessary.
6. During the work, take all necessary precautions to prevent the release or dispersal of sediment and materials from the site to fish habitat, by wind, rainwater runoff or other means.

7. Isolate the work area in water so temporary structures are impervious to contain suspended solids within the enclosure. These structures must be left in place long enough to allow the fine particles to settle. E.g. circumscribe the work area with a sediment barrier.
8. Use machinery in good working order and provide refuel in a secure area more than 30 m from shore to avoid any risk of oil, grease or fuel being spilled into the water.
9. No machinery should circulate in the water. The machinery must work from the shore **or a suitable barge.**
10. Driving of sheet piles must be done by vibratory driving. Five to ten warning shots must be given before each start-up of hammering work, when the work stoppage has been more than 30 minutes; this, in order to keep the aquatic fauna away.
11. Use clean materials, free of fine sediments, for work in fish habitat. These materials must not come from the bed of the body of water or its banks. Dispose of excavated material beyond the bank, shoreline and all wetlands in an appropriate site in accordance with the laws and regulations in force.
12. Do not release debris from work in the aquatic environment. Any debris accidentally introduced into the aquatic environment should be removed as soon as possible.
13. Do not carry out any excavation or excavation work on the shore during floods or during heavy rains.
14. Excavation material must be disposed of beyond the bank, shoreline and all wetlands.
15. Do not leave the land bare on the shore or shoreline. To this end, while awaiting the regeneration of permanent vegetation, protect the soil from rain or run-off with a mulch retained by a biodegradable net.
16. Work on the shore must be carried out without creating an encroachment into fish habitat, respecting the current shoreline profile or sloping into the bank.
17. All plant species planted should be indigenous and typical of the environment, over a width sufficient to provide stability.
18. At the end of the work, dismantle the temporary structures in such a way as to avoid reintroducing the sediments accumulated during the work, and restore the site to its natural state.

1.5 Section « 01 29 00 – Payment»

.1 *Article 1.3.3.4 has been modified as follows:*

- .4 Disposal of the excavated material or sediment, if it does not appear to be contaminated as a result of its characterization as well as the provision of materials necessary for backfilling of the seabed, are payable according to articles "Off-site Disposal, Management and Disposal of uncontaminated excavated material or sediment from seabed excavation for the placement of sheet piles (if required) » and « Riprap or granular material of 5-100 calibre for backfilling of cavities and serving as a fill for the seabed of existing wharf »'of the payment schedule.

.2 *Article 1.3.5.1 has been modified as follows:*

5. Rock-fill or 5-100 Granular Material for Backfilling of Cavities and Used as a Plug for the Seabed of the Existing Wharf

- .1 This price, remunerated per metric tonne (m.t) shall pay for the supply and placement of stone or 5-100 granular material for backfilling of cavities in the seabed left in place by excavation work or discovered during the work and used as a plug for the seabed prior to backfilling of the net stone, all as specified in the plans and shall include, but not be limited to, the supply of equipment and materials, machinery, equipment, and labor, the preparation, leveling, cleaning of

the surface to be covered, transportation and installation of the stone and the cost of carrying out such work, whether they are specifically described or not, either in the drawings or in the specifications or other tender documents, but deemed necessary for the completion of the work.

1.6 Section « 01 56 00 – Temporary Barriers and Enclosures »

.1 *Article 2.1 has been modified as follows:*

3.1 WORKSITE FENCES

1. Erect a temporary fencing around the worksite, consisting of a new 2.4 m high Omega type fence attached with wire to T-profiled columns at 2.4 m centers. Provide a lockable access barrier for trucks, minimum. Place fences around trees and plants to be left in place to protect them from damage that may be caused to them by the equipment used or by certain construction practices. Fences must be securely fastened with concrete blocks and stiffeners to prevent their falling over.
2. Fences on the periphery of the site shall be provided to support banners 2.4 m high, around the entire limits of the worksite, at the locations identified on the plans
3. The maximum length of a printed section is 96 inches to ensure the solidity of the banners.
4. The access doors to the site as well as the openings necessary for the proper operation of the site will not need banners. Arrange the installation of the banners with the co-ordination of a Parks Canada Agency Representative. The graphic design of the banners will be provided by Parks Canada through electronic support
5. Technical specifications of the banners:
 - o MESH material with printed design by Parks Canada Agency.
 - o Perforation type 60% printable / 40% air flow rate.
 - o Dimensions: 96 inches high x length of sections of fences to cover.
 - o Finish: matt.
 - o Perimeter with hem and double seam.
 - o Use: outdoor use.
 - o Hooking system: With eyelets at 12 inches c/c maximum along the perimeter of a section. The Contractor will be responsible for choosing the type of attachment to ensure the stability and solidity of the banners on the fences.
 - o Submit all posters at the end of the worksite to Parks Canada.
 - o Provide a 1.0m x 1.0m print sample for Parks Canada approval prior to full printing.

.2 *Article 3.2 has been added:*

3.2 INSTALLATION, MAINTENANCE AND REMOVAL OF BANNERS

1. The banners throughout the construction site must be maintained by the Contractor (cleaning, straightening of detached banners, replacement of banners damaged by wind, etc.).
2. Banners will be removed and stored by the Contractor in mid-December 2018 (before the first snow).
3. The banners will have to be reinstalled as soon as the snow melts in spring 2019, at the same time as the reconfiguration of the site

1.7 Section « 01 78 00 – Closeout Submittals »

.1 *Article 1.3.2 has been modified as follows:*

2. Two (2) weeks prior to completion **or acceptance of** Substantial Performance of the Work, submit to the Departmental Representative, **two (2) final paper** copies of operating and maintenance manuals (**project file**), **The project file must be submitted in paper format and in electronic format (*.pdf).**

.2 *Articles 1.5.5, 1.5.6 and 1.5.7 have been added*

5. The project file must include all approved project shop drawings/data sheets/work methods/approved environmental plan, etc. A summary table with numbering of each element should be provided to easily retrace a shop drawing or other document in the project file.
6. The project file must include all reports and tests carried out by the Contractor including the final report of the underwater inspections and the laboratory report on the mixture with exposed aggregates.
7. The project file must include all directives and change orders issued during the works.

.3 *Article 1.7 has been modified as follows*

1.7 FINAL SURVEY CERTIFICATE

1. Submit the final survey certificate certifying compliance or non-compliance with the requirements of the Contract Documents for the location and grade of completed structures.
2. A final survey must be completed by a land surveyor to update the federal land register after the work (Location Certificate).
3. A complete survey must also be completed by the Contractor's surveyor to incorporate into the Consultant's final ("As-built") documents.

Part 2 Addendum #1 – Modifications to the drawings

1.8 STRUCTURAL drawing sheets:

.1 *Modifications to sheet C12:*

Notes on the existing bollard bases and lamp post bases have been adjusted.

.2 *Modifications to sheets C15, C16, C17, C18 and C19*

Expansion joints have been added

.3 *Modifications to sheet C22:*

A detail of the anchor plate has been added.

The rip-rap zone in the area of the new retaining wall has been modified.

.4 *Modifications to sheet C27*

The quantities of the table have been adjusted.

Part 2 Addenda #1 – Modifications to the Pricing Schedule

.5 *Article 1.3.5.1 has been modified as follows:*

Rock-fill or 5-100 Granular Material for Backfilling of Cavities and Used as a Plug for the Seabed of the Existing Wharf.

END OF ADDENDUM #1

Archaeological interventions in 2017 preceding the restoration of the Federal Wharf at the Chambly Canal National Historic Site.



The Federal Wharf during work in 1931 (Parks Canada Archives, Quebec, Quebec Canals no. n.d, 1931)

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SUMMARY

In 2017, as part of Parks Canada's Federal Infrastructure Investment Program, the Quebec Waterways Field Unit proposed a project to partially restore the Federal Wharf at the Chambly Canal. Since this work was likely to unearth, disturb or destroy archaeological remains, Parks Canada entrusted archaeological supervision to André Miller, a Parks Canada archaeologist. This work made it possible to record various elements related to the general evolution of the Federal Wharf near locks 1, 2 and 3 of the Chambly Canal, and

various developments associated mainly with marine transportation.

1. Brief history of Chambly and evolution of the wharf sector

The discovery of archaeological resources on the banks of the Chambly Basin and on the site of Fort Chambly confirms the presence of pre-contact occupations in this area. The banks of the Chambly Basin have been occupied more than once over the course of more than 5,000 years (Miller 2016a, 5; Cloutier 2000a, 1). The construction of the first fort in Chambly, in 1665, marked the beginning of French occupation in what is Chambly today. Since its construction, this fort has been connected to Montréal by a road running along the south side of the Chambly Basin. The construction of a new stone fort in Chambly, in 1711, in response to the threat of an Anglo-American invasion, led to the establishment of an area free of any structures around the fort, called the “suburb.” The western boundary of this suburb roughly matched, along the Chambly Basin, the western boundary of Chambly Canal properties. Despite the presence of this reserve, civil structures were nonetheless erected directly west of the small ravine inside the suburb’s western boundary. Moreover, when the expansive Chambly military complex was established during the War of 1812–1814, some of these structures were used by military personnel (Cloutier 2000a, 2).

2. Historical overview of the Chambly Canal

The commemorative intent of the Chambly Canal is as follows: “The Chambly Canal is part of Canada’s network of historic canals. Located on the Richelieu River, it commemorates, with the Saint-Ours Canal, the role of this navigable waterway during the 19th and the 20th centuries, as part of a canal system linking Montreal to New York via the Richelieu River, Lake Champlain and the Hudson River.” (Parks Canada 2004). The strategic significance of the Richelieu River as a point of entry from the eastern side of the continent was apparent from the beginning of the French colony in the 17th century. It was

for the purpose of controlling the territory, and this river, that the French built a series of forts along the Richelieu. The first Chambly, Ste-Thérèse and Saint-Jean forts are important evidence of that period. Moreover, in order to bypass the rapids between Saint-Jean and Chambly, which made for difficult portages, traders in the second half of the 18th century dreamed of a canal that would allow them to avoid these obstacles. However, it would not be until the 19th century that approval would be given to build a waterway connecting Lake Champlain to the Chambly Basin. Although the government of Lower Canada gave the construction of this waterway the green light in 1818, it took until 1829 for the project to be entrusted to commissioners, all businessmen from the Richelieu region. Difficulties arose, and it was only on September 5, 1831, that the canal's commissioners granted the construction contract to a group of American and Canadian businessmen. The first phase of the Chambly Canal construction was between 1831 and 1835. The initial excavation and survey work began on October 1, 1831. The engineer in charge of this work was William R. Hopkins.ⁱ Towards the end of 1832, the trenches for the locks and the canal were nearly complete, despite the cholera epidemic that raged through the province. In 1833, boats were able to navigate between Saint-Jean and Chambly's first lock. The stone for the masonry work came from Isle La Motte on Lake Champlain (GRHQ 1997, 4). However, in 1834, work was interrupted due to financial problems. In 1841, work resumed, and ended in 1843 with the official opening of the Chambly Canal.ⁱⁱ Finished in 1842, the three combined locks of this part of the canal opened the entire length of the canal to navigation in November 1843. A certain number of structures associated with the operation of the locks and the canal were erected on both sides of the locks in 1842. Most have been rebuilt or replaced since. Some have survived to this day, including the lock operator's post. The canal would play an ever-larger trade role until the beginning of the 20th century, the heyday of Canada-US trade on the

Richelieu. The First World War and the Great Depression marked the first signs of decline in commercial navigation on the Chambly Canal. Commercial navigation ground to a near halt in the early 1970s and was gradually replaced by pleasure boating. The barges and boats of the time gave way to pleasure boats, sailing boats and pontoons. Historically, the canal contributed to the economic expansion of the town of Chambly, and especially the city of Saint-Jean-sur-Richelieu, which was the maritime, road and rail transport hub in the 19th century. The Chambly Canal is 19.5 kilometres long and is punctuated by nine locks measuring 37 metres long by 7 metres wide. The water depth on the thresholds of these locks is about 2 metres. These were the dimensions suitable for craft at the time that the waterway was being built. However, in 1840, sail barges or small schooners from the beginning of the century had been replaced, for some decades already, by even larger boats. Repair and consolidation work took place from 1850 to 1858.ⁱⁱⁱ In addition from dredging, the canal was widened in several places and then many slopes were replaced with vertical concrete retaining walls, dressed stone walls or gabion walls. The original appearance of the Chambly Canal and its towpath were transformed along its entire length between St-Jean-sur-Richelieu and the Chambly Basin. [Translation] “Although the canal has retained its original route to this day, its prism and width have been modified over part of its route in the 1880s to 1900s, as well as in the 1960s. The extent of these modifications remains unclear.” (Piédalue, LeBrun 2001, 4). In addition to work directly associated with the construction, operation and maintenance of the canal, the surrounding land housed various port and industrial facilities, particularly in Saint-Jean-sur-Richelieu and Chambly.

2.1 The Federal Wharf site

The Federal Wharf is located downstream from lock no. 1 of the Chambly Canal (Fig. 1). Immersed in the Chambly Basin, this pier is an integral part of the canal’s infrastructure. The wharf was likely put in at the beginning of the second phase of the canal’s construction

in 1841. At the time, only part of the current wharf was in place. The wharf was extended in 1875 and 1879 (Fig. 2).



Figure 1 – Chambly Canal sector – Federal Wharf – Locks 1-2-3 – Superintendent’s house – Bridge 1 – Parc Migneault – Parc des Ateliers. Parks Canada land is marked out in red.

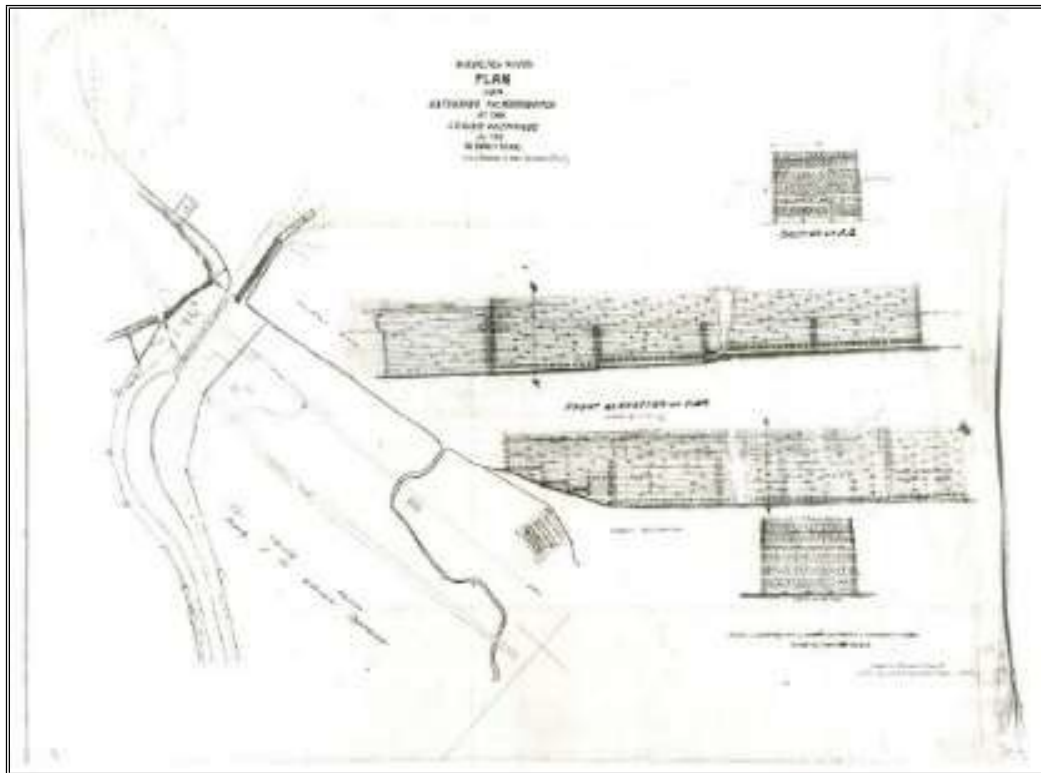


Figure 2 – Richelieu River, Plan for extending the mooring pier at the lower entrance of the Chambly canal (Parks Canada Archives, Quebec, Quebec Canals no. 156/00/iC-555 av.1925)

The main objective of the Federal Wharf restoration on the Chambly Canal is to ensure user safety and continued enjoyment of recreational activities associated with it. The planned restoration work includes the installation of a new apron and the construction of a curtain wall with steel sheet plating and a cope wall. This work will also facilitate the installation of lay-to wharves and developments before the start of the boating season. Access to and use of this wharf has been prohibited for many years due to disrepair. New information for the restoration was required and was used to conduct an archaeological impact analysis to prepare drawings and specifications. In 2017, the archaeological intervention therefore involved creating exploratory wells on the Federal Wharf structure to document its components, and to determine archaeological issues during restoration and mitigation measures we could propose. Existing or potential resources in this sector are also located on both sides of access roads, the archeological potential of which was stressed

more than once by Parks Canada archaeologists.

3. Intervention methods in the field

Weather conditions for this archaeological intervention were ideal. The Parks Canada archaeologist was accompanied by Matthieu Paradis, Policy Advisor, Cultural Resource Management, National Office / UVNQ, and the backhoe operator for the excavations. The archaeological intervention at the Federal Wharf consisted primarily in supervising the mechanical excavation planned during soil extraction. Four (4) mechanical excavations were carried out on the wharf, at locations defined by the field archaeologist, in order to obtain a representation of the soil layers and potentially discover remains of wooden boxes and sheet piling comprising its understructure during the various phases of its construction. To record the data for Parks Canada, an adaptation of the Tikal system was used. This Parks Canada alphanumeric system involves assigning a number to identify a research area inside which each sub-operation is identified by a letter. The various lots, layers or structures observed within a sub-operation are identified by another number. So that the data can be matched in the Parks Canada database to the Federal Wharf, sub-operation 510G13A was used to identify the first excavation, and sub-operation 510G13D (Fig. 3) was used for the last. Archaeological site number 510G was used according to Parks Canada data. The necessary readings (measurements, location, photos, descriptions) were taken for interpretation. The manual removal of remains discovered around the bollards, planimetric and photographic surveys of all the archaeological features, descriptions of the unearthed artefacts, round out the field intervention. The creation of an archeological intervention plan (Fig. 3) and the analysis of historical and archaeological data form a dataset that add to our knowledge about the site's use.



Figure 3 – Location of excavations/sub-operations on the Federal Wharf. Note the location of the wall tie in excavation/sub-operation 510G13C (André Miller, ArcGIS, Parks Canada, Gatineau).

4. The archaeological potential of the locks 1, 2 and 3 sector (Chambly)

The locks 1, 2 and 3 sector includes the following features: the Federal Wharf, three locks, a lockmaster's shelter, the superintendent's house, and bridge no. 1. Most of these structures are significant features that characterize this portion of the Chambly Canal. Parc des Ateliers, located near the work area, also has a high archaeological potential (Fig. 1). Both Parc des Ateliers and the locks sector were formerly occupied by canal maintenance and operation workshops and buildings. Built in the 19th century, these related workshops and buildings included a carpenter's workshop, a forge, a warehouse for lock gates, stables, a building for lumber, and a tool shed. More than one of these buildings burned down, while others were either demolished or moved. Locks 1, 2 and 3 on the Chambly Canal are already a century and a half old, and contain, behind their walls, the presumed remains of a dozen archaeological resources, some dating back more than 175 years. A large number of these archaeological resources are directly linked to the canal's presence as a maritime transport hub, while other resources are associated with Chambly buildings and transportation routes before the canal was built. The uncovered cultural resources are indicative of a military, port and trade sector formerly located in the southern part of the Chambly Basin. Many historical drawings and photos show the changes that the Federal Wharf sector underwent after the end of the 19th century. An in-depth analysis of stock footage and old photos reveals the wealth of the sector's potential archaeological remains.

5. Previous archaeological interventions

Archaeological interventions dating back to the 60s and 70s in many of the canal's sectors led to the discovery of remains, including an archaeological site from the pre-contact period (Clermont 1974), the canal's construction, and subsequent work. The archaeological interventions carried out in the Chambly Canal in recent decades were located more specifically in the waterway sector in St-Jean-sur Richelieu (Archéotec 2017; Cloutier 2000b; Bernier 2008) and at the Fort Chambly site (Perry 2016; Cloutier 2016; Bernier 2015a; Bernier 2015b; Piédalue 1997). In 2016 and 2017, more than one assessment of the archaeological potential and opinion was submitted to the UVNQ for this sector. Some examples of assessments include: the redevelopment of Parc Migneault (Miller 2016a), the creation of a pedestrian path between lock no. 4 and Parc Migneault (Miller 2016b), the restoration of the canal's gabions and embankments (Miller 2016c), and an archaeological assessment for the partial restoration of the Federal Wharf (Miller 2017). In short, these assessments served to document the archeological resources of this sector and to propose archaeological interventions in the form of archeological supervision during excavation.

6. Results of the 2017 archaeological intervention on the Federal Wharf (510G)

Sub-operations 510G13A and 510G13B were recorded on September 20, 2017, during the mechanical excavation of exploratory trenches measuring 3 metres by 3 metres, in the northern portion of the Federal Wharf. The lots registered in the first sub-operation (Table 1) match the soil levels observed and the remains of a bollard and its base (510G13A101), then the discovered remains/artefacts. Sub-operations 510G13C and 510G13D were recorded on September 21, 2017, and match two excavations carried out to document soil levels and potential remains in the southeastern portion of the wharf.

Sub-operation 510G13C measured 3 metres by 3 metres on the surface, while sub-operation 510G13D measured 2 metres by 4 metres on the surface. These sub-operations also have two to four arbitrary lots, including the in-situ remains of a bollard (510G13D101) and a concrete slab (510G13D102).

Table 1. Descriptive table of sub-operation 510G13A

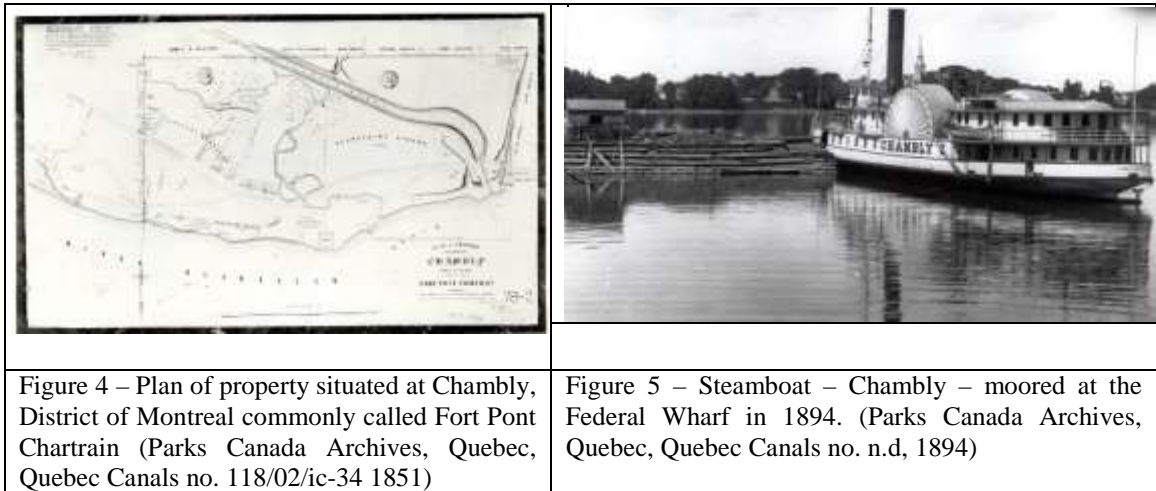
Lot	Below surface (m)	Depth (m)	Description	Interpretation	Dating
13A1	0.00	0.10	Asphalt	Surface	20 th
13A2	0.10	0.30	¾ gravel and stone dust	Levelling fill	20 th
13A3	0.30	1.00	Fill and wharf debris	Wharf surface debris	20 th
13A4	1.00	-	Fill of large limestone and sandstone stones, sand	Wooden box backfill?	20 th

The soil levels essentially present the same horizons, that is, horizon A consisting of asphalt, horizon B consisting of ¾ gravel and stone dust, and horizon C consisting of fill and various material: stones, concrete, brick fragments, and a mix of soils from previous wharf restorations. As for horizon D, the fill consists of fragments of large limestone and sandstone stones mixed with crushed rock and soft grey-brown sand. Moreover, the excavation for sub-operation 510G13D, the one furthest to the southeast of the pier, has a stratigraphy that is distinguished from others by its concrete slab unearthed under 15 centimetres of asphalt and gravel. No artefacts were unearthed in this soil level. However, the bollard (511G13D101) within the concrete slab was recorded. This level with the concrete slab could be a recently restored portion of the wharf.

7. Archaeological discoveries in 2017 at the Federal Wharf

The Federal Wharf was erected for mooring barges and boats waiting to take the canal in the 19th century. This pier, which connects the shore and access to the locks on the east

side, did not exist in 1835. An 1835 canal project drawing shows two mooring boxes in the location of the Federal Wharf. Another drawing, dating back to 1851, clearly shows this pier in its first configuration (Fig. 4). Moreover, a drawing from 1881 and as a series of photos taken between 1894 and 1936 show how the structure changed. In 1894, the wharf was used for mooring steamboats (Fig. 5).



The artefacts and remains discovered in the four excavated wells can be summarized as follows: stone wedges, iron rods, an anchor (Fig. 6), recent rusty nails, a wall tie in sub-operation 510G13C, fragments of recent glass bottles, and a Coca-Cola bottle. Three bollards and their bases (Fig. 7, 8, 9) as well as fairly recent concrete slabs were also unearthed. The slabs found during the sub-operations are similar in thickness but were manufactured using a different technique. Some slab fragments were painted red (Fig. 9) and differed from the concrete slab still in place (Fig. 10) in the southeastern-most part, near the locks.



Figure 6 – Stone wedges, piles, anchor (lot 510G13A3) and small square concrete base (lot 510G13B3) discovered during excavations at the Federal Wharf (Photo Matthieu Paradis, Parks Canada).



Figure 7 – Bollard and its concrete base two layers deep (510G13A101) located at the northeast end of the Federal Wharf (Photo Matthieu Paradis, Parks Canada).



Figure 8 – Size of excavation, bollard, massive concrete base and tie attached to wall (510G13C102) located in the southeastern part of the Federal Wharf (Photo Matthieu Paradis, Parks Canada).



Figure 9 – Size of excavation and fragments of concrete slab, painted red, extracted from the soil level (lot 510G13B3). Located at the junction of the pier (Photo Matthieu Paradis, Parks Canada).



Figure 10 – Size of surface excavation, concrete slab with bollard (510G13D101) located in the southeastern part of the Federal Wharf (Photo Matthieu Paradis, Parks Canada).

CONCLUSION AND RECOMMENDATIONS

The archaeological interventions carried out in 2017 on the Federal Wharf at the Chambly Canal National Historic Site led to the collection of a certain amount of archaeological data that improve our knowledge about the site's use. Although cursory, the discovery of elements belonging to various developments associated with the Federal Wharf structure represent remains that speak to the physical transformations of this pier in the Chambly locks sector. The artefacts collected from the site provide evidence of the wharf's maintenance, transformations and operations in the 20th century. These discoveries show the rich archaeological potential of the historical developments linked to the canal and provide a glimpse into the avenues of interpretation offered by the embankments of the Chambly Canal. More than one recommendation has previously been made by consulting firms and Parks Canada archaeologists in the Chambly locks sector. Further to the 2017 archaeological interventions, we propose carrying out archaeological supervision during subsequent restoration work and conducting a study of the archaeological potential, if possible, of the sector's evolution on federal property, as well as a literature search on facilities in the vicinity of the Federal Wharf at the Chambly Canal National Historic Site.

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ⁱⁱ Parks Canada, 2017, Chambly Canal website, accessed on November 29, 2017:

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ⁱⁱⁱ Register of Canada's Historic Places / Chambly Canal, accessed on November 28, 2017:

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