



Utilities
Kingston

WSP #: 131-18048-00

**PORTSMOUTH PUMPING FLOW DIRECTION
AND FRONT ROAD TRUNK WATERMAIN
INTERCONNECTION**

HERITAGE IMPACT STATEMENT

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Utilities Kingston
131-18048-00
June 2014

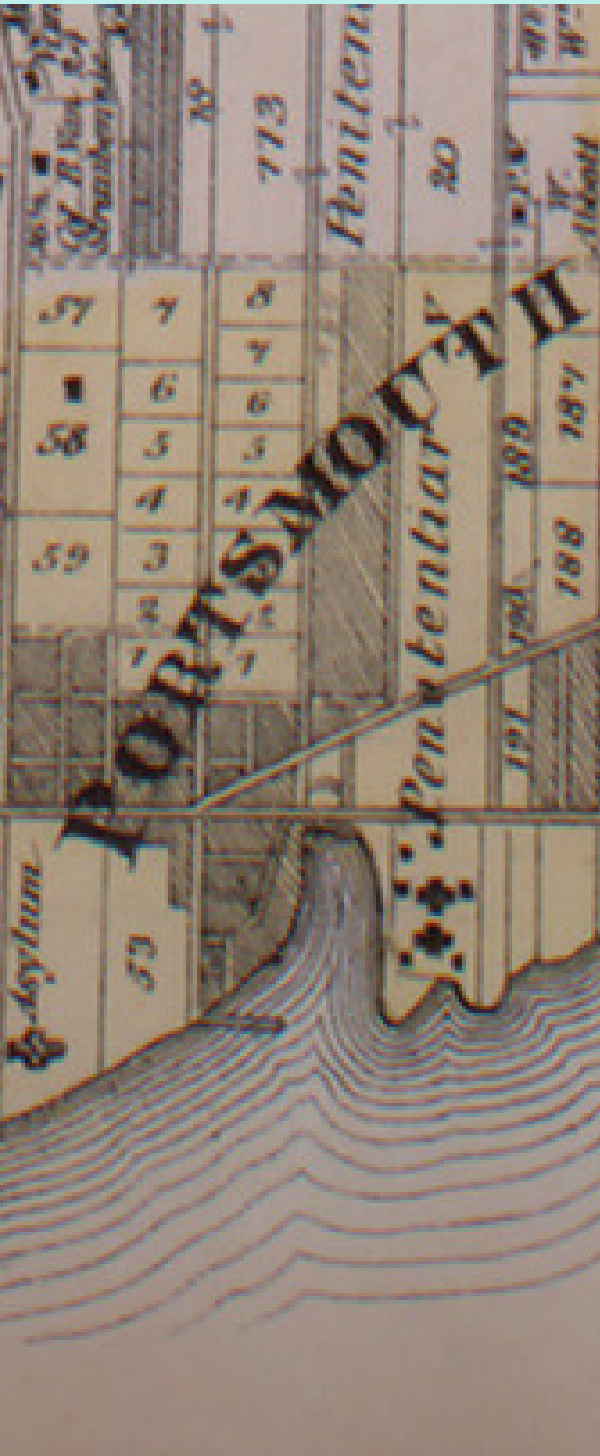


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EXECUTIVE SUMMARY

WSP Canada Inc. (WSP) was retained by Utilities Kingston to prepare a Heritage Impact Statement (HIS) for the area to be impacted by the proposed forcemain and watermain which extends from 455 Front Road to 560 King Street West, City of Kingston, Geographic Township of Kingston and the County of Frontenac in the Province of Ontario.

This HIS has been triggered by Utilities Kingston's intent to evaluate the option of redirecting the flow at Portsmouth Pumping Station (PS) from Ravensview to Cataraqui Bay Waste Water Treatment Plant and establishing the trunk watermain connection on Front Road between Sand Bay Lane and Sir John A. MacDonald Boulevard as part of the City's unified Master Plan for the provision of treated water. The HIS is prepared as a component of the Environmental Assessment (EA) process. The City of Kingston is the approval authority under the Planning Act. Having completed the Screening for Built Heritage and Cultural Heritage Landscapes, it has been determined that there is a requirement to complete a HIS as one of the conditions for approval to ensure that the proponent meets their legal obligations under the *Ontario Heritage Act*.

This study involved a review of documents pertaining to the property including mapping and local histories and consultation with the City of Kingston Heritage Planning staff to scope the terms of the HIS.

The HIS does not seek to designate any structures or landscapes in the area under investigation (road ROW, Aberdeen Park and areas east of the Cataraqui Bridge) as areas having cultural heritage value or interest. The area to be physically impacted by the proposed activities has already been disturbed by road construction, sewer and infrastructure development. However, due to the proximity of the work to both listed and designated heritage structures and landscapes in and around the Portsmouth Village and King Street Heritage corridor, a statement of potential impacts and mitigation measures is required under the Environmental Assessment to satisfy the *Ontario Heritage Act* requirements.

- **Design and locate new infrastructure required along routes with the largest setback from heritage buildings (centre of ROW within roadway) and along the least compact streetscapes wherever possible;**
- **Prior to construction, the contractor must become familiar with the locations of all known built heritage resources and cultural heritage landscapes adjacent to the area of the undertaking and, as outlined herein, take steps to prevent any impact to those heritage resources;**

- **Prior to construction, a vibration susceptibility analysis (as outlined herein) must be conducted to establish baseline data on identified built heritage resources. Should the analysis indicate that a resource will be unduly impacted, a building monitoring program must be implemented during construction;**
- **If during the process of development previously undetected built heritage resources or cultural heritage landscapes are identified, work in the area should cease and the developer or their agents should immediately notify the City of Kingston's Heritage Planner (613-546-4291, ext. 1386).**
- **During construction and after the completion of construction activities, the City of Kingston heritage planning staff will inspect the property to confirm that there are no unanticipated adverse impacts on the built heritage or cultural heritage landscapes. Should any damage be done to an existing structure, the City of Kingston's Policy on Masonry Restoration in Heritage Buildings is to be followed.**

PROJECT PERSONNEL

Project Manager & Field Director	Douglas A. Yahn, M.E.S. (P365) <i>Senior Archaeologist</i>
Field Assistant	Michael Flowers, EIT <i>Municipal Designer</i>
Report Preparation	Douglas A. Yahn, M.E.S. Michael Flowers, EIT
Mapping	Michael Flowers, EIT
Heritage Reviewer	Douglas A. Yahn, M.E.S. <i>Senior Archaeologist</i>
Engineering Reviewer	Matt Morkem, P.Eng <i>Municipal Engineer</i>

1 COMPANY PROFILE

WSP is one of the world's leading professional services firms, working with governments, businesses, architects and planners and providing integrated solutions across many disciplines. The firm provides services to transform the built environment and restore the natural environment, and its expertise ranges from environmental remediation to urban planning, from engineering iconic buildings to designing sustainable transport networks, and from developing the energy sources of the future to enabling new ways of extracting essential resources. It has approximately 16,800 employees, mainly engineers, technicians, scientists, architects, planners, surveyors as well as various environmental experts and design professionals, based in more than 300 offices, across 30 countries, on 5 continents.

1.1 QUALIFICATIONS AND EXPERIENCE

The Heritage Impact Statement has been completed by Douglas Yahn, professional archaeologist, Matt Morkem, professional engineer and Michael Flowers, Municipal Designer.

1.1.1 DOUGLAS A. YAHN, MES – SENIOR ARCHAEOLOGICAL CONSULTANT

Douglas holds a Professional license to conduct archaeological fieldwork in the Province of Ontario. He is a specialist in archaeological assessment, excavation project management and archaeological, historical and heritage research. His experience includes Stage 1, Stage 2, and Stage 3 Archaeological Assessment and Stage 4 Mitigation of Development Impacts carried out in accordance with the 2011 *Standards and Guidelines for Consultant Archaeologists* in association with First Nations groups, municipal, industrial and government agencies. He has also performed historical research for various organizations and individuals.

Douglas has experience with both precontact archaeology and urban historical archaeology. Douglas is listed as the Ontario Ministry of Transportation RAQS Specialist in Archaeology/Heritage for WSP Canada Inc.

Douglas is an active member of the greater archaeological community. He is a member of the Canadian Archaeological Association (CAA) and the Ontario Archaeological Society (OAS). He currently sits on the Executive Board of Directors for the Thunder Bay Historical Museum and the Board of Directors for the Association of Professional Archaeologists. He is also a Professional Associate at Lakehead University.

1.1.2 MATT MORKEM, P.ENG. – MANAGER OF INFRASTRUCTURE, KINGSTON

Matt is a Professional Engineer licensed in the province of Ontario with over 10 years of project and design experience. He is the manager of Municipal Infrastructure for the Kingston region and manages municipal and transportation projects across Eastern Ontario. He is based in the Kingston office location and performs preliminary design, detailed design services, construction administration, estimation, public consultation, condition assessment, and tendering services. Matt is also involved with the instigation and execution of environmental assessments for municipal projects.

As the manager of the Kingston office Matt is involved with and oversees various projects involving preservation of built heritage and cultural landscapes. Most notably for the National Historic site Fort Henry, which is part of a UNESCO world heritage designation, where WSP (formally GENIVAR) was retained by Parks Canada to provide unique designs for preserving and improving historical drainage systems and heritage attributes. Matt assists in the condition assessment, design and construction administration for these projects.

1.1.3 MICHAEL FLOWERS, EIT, LEED GREEN ASSOCIATE – MUNICIPAL DESIGNER, KINGSTON

Michael is an engineering intern with over 3 years of project and design experience. He is involved with research, design, construction administration, drafting, pre-engineering and storm/sanitary computer modelling on various municipal projects.

As a municipal designer from the Kingston office Michael performs research and design for various projects involving historical restoration work and site plan control. Recently Michael has been part of the design and construction administration team for the For Henry restoration and improvement projects for the Advance Battery, Stockade Yard and Redoubt Parade Square as retained by Parks Canada. His work involved researching suitable restoration technologies, design, archeology coordination, field inspection, condition assessment and project documentation. Michael is also involved with the completing environmental assessments as part of the WSP consulting team and has experience with the City of Kingston site plan control process.

2 PROJECT CONTEXT

2.1 OBJECTIVES

A Heritage Impact Statement is a required study to be submitted for development proposals where there is the potential to impact to protected heritage properties. This could be the result of development or site alteration on the property itself or on adjacent properties.

The work that will be undertaken will be confined to the municipal Right of Way (ROW) and every effort will be made to ensure that the infrastructure work will not adversely impact the known built heritage resources and cultural heritage landscapes in the study area. For a portion of the work, alternate routing along Kennedy Street has been suggested to reduce the impact on the constrained King Street ROW and works undertaken in Aberdeen Park will be routed around the Portsmouth Town Hall. Areas identified as previously disturbed will be utilized to reduce or eliminate the potential to uncover previously unknown cultural heritage resources.

The authority for the Heritage Impact Statement is derived from the *Ontario Heritage Act*, Section 2(d) of the *Planning Act*, and Section 2.6 of the *Provincial Policy Statement*, 2014.

2.2 HISTORICAL CONTEXT

2.2.1 HISTORIC DOCUMENTATION

The subject area is located within the City of Kingston, which has a rich cultural history. The Kingston Historical Society is an essential resource for those looking for additional information on the City of Kingston.

2.2.2 PRE-CONTACT PERIOD

Use and occupation of the area began around 11,000 years ago with the arrival of hunter-gatherer groups who were exploiting the resources of the newly opened lands following deglaciation. This Palaeo-Indian tradition is characterized by the manufacture of tools from rock materials and included projectile points, graters and scrapers. It is likely that additional materials were in use such as bone, wood and other materials – although evidence of this material is unlikely to have survived. As subsistence strategies changed in response to environment and technological change occurred, the archaeological definition of area cultures also changed. The Archaic tradition (beginning around 7,000 BC) is defined by the appearance of ground stone tools, fishing implements, copper tools and other innovative shifts in technology.

The appearance of pottery was the salient marker of the beginning of the Woodland tradition (beginning around 1,000 BC). By this time, trade relationships with other regions were well established and social complexity had greatly increased. Incipient agriculture in some regions began a transition to agricultural villages. By the time Europeans arrived in this area, agricultural communities with allied regional populations were also present.

2.2.3 POST – CONTACT PERIOD

The history of European exploration, trade and settlement of the St. Lawrence and Lake Ontario is complex. Samuel de Champlain explored the region in 1615. In 1673, Fort Cataraqui (later Fort Frontenac) was established by the French at the mouth of the Cataraqui River. The establishment of Fort Frontenac near the mouth of the Cataraqui River initiated long term European presence in the area. The fort served French interests until 1758 when it was taken over by the British. In 1783, owing to land grants following the American Revolution, the United Empire Loyalists then settled in the area.

An overview of the history of Kingston’s historic core can be found in Williamson et.al. (2010). The history can be broken down into the following periods:

- French Period (1673 to 1758)
- The Loyalist Settlement at Cataraqui
- Early Commerce
- Period of Growth (1812-1838)
- Kingston as Capital (1838-1844)
- Changing Economy (1845-1859)
- 1860s and Beyond

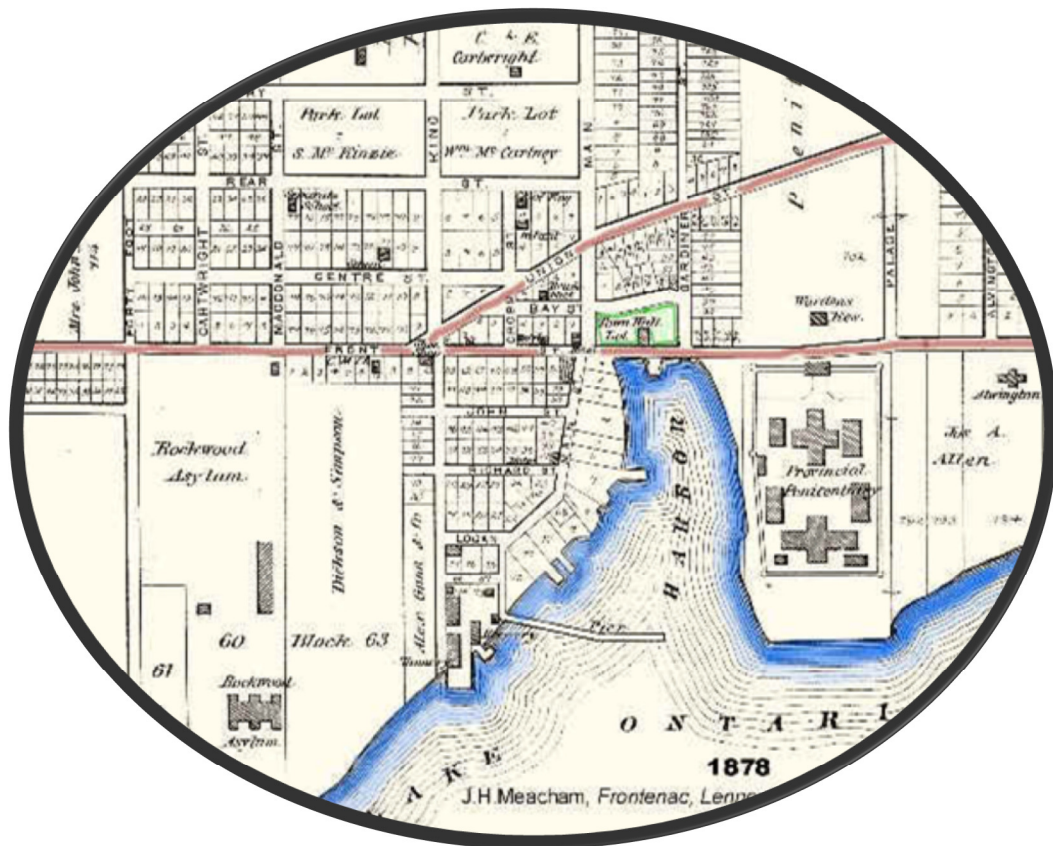
2.2.4 STUDY AREA SPECIFIC HISTORY

A portion of the work will take place along the King Street Heritage corridor, but the majority of the subject area containing known heritage resources is located in the historical ‘Portsmouth Village’ section of Kingston. The Portsmouth Village commemorative plaque (1999) reads:

Originally part of Kingston Township, this area was granted to United Empire Loyalists in 1784. A village, first known as ‘Hatter’s Bay,’ grew in response to the establishment of the Provincial Penitentiary in 1833, and was formally incorporated in 1858. King Street West was extended across a bay south of here in 1845, and a stone town hall, designed by William Coverdale, was erected on the reclaimed land in 1865. The common was named Aberdeen Park by 1900. Villagers worked in tanneries, breweries, shipyards, sawmills, as well as the penitentiary and nearby asylum, but economic opportunities declined in the late 19th-century. The village was annexed by the city of Kingston in 1952. Many interesting early stone, brick, and frame buildings have survived in this area.

In addition to the presence of Designated, Listed and Provincially Significant/Easement Properties at Portsmouth Harbour, the Master Plan of Archaeological Resources for the City of Kingston (Williamson et. al. 2010) identifies Portsmouth Village as an Archaeologically Sensitive Area (ASA).

Section 27 of the *Ontario Heritage Act* requires the clerk of every local municipality to keep a current, publicly accessible register of properties of cultural heritage value or interest situated in the municipality. The register must include all properties in the municipality that are designated under the *Ontario Heritage Act*. The *Ontario Heritage Act* also allows municipalities to “list” on the municipal register properties of cultural heritage value that have not been designated. Listing is a means to formally identify properties that may have cultural heritage value or interest to the community.



3 DOCUMENTATION OF CULTURAL HERITAGE RESOURCES

3.1 METHODOLOGY

The Heritage Impact Statement was prepared in consultation with Lindsay Lambert and Shirley Bailey from the City of Kingston Planning and Development Department and with reference to the City of Kingston's *Heritage Impact Statement Requirements* document.

The initial project area visit was conducted on July 24, 2013 in conjunction with the Stage1-2 archaeological assessment. Subsequent site visits were undertaken to photograph built heritage structures and determine proximity of work locations to heritage structures to be potentially impacted.

First-hand knowledge was supplemented by the City of Kingston's *Municipal Register of Identified Heritage Properties*, the City of Kingston's *Cultural Resources Mapping*, the City of Kingston's *Official Plan* and the City of Kingston's *Archaeological Master Plan*.

Mitigation strategies were developed based on the City of Kingston's *Policy on Masonry Restoration in Heritage Buildings*, the *Ontario Heritage Tool Kit*, the Ontario Ministry of Tourism, Culture and Sport: *Heritage Conservation Principle's for Land Use Planning*, Ontario Ministry of Tourism, Culture and Sport: *Eight Guiding Principles in the Conservation of Historic Properties*, Parks Canada *Standards and Guidelines for the Conservation of Historic Places in Canada*, and Mark Fram's *Well Preserved: The Ontario Heritage Foundation's Manual of Principles and Practice for Architectural Conservation*.

3.2 POTENTIAL BUILT HERITAGE RESOURCES AND CULTURAL HERITAGE LANDSCAPES

This report identifies known built heritage resources and cultural heritage landscapes as documented through municipal, provincial and federal registers.

The City of Kingston is currently undertaking a review of built heritage resources and cultural heritage landscapes within the municipality and is pursuing Part V designations to group heritage properties into Heritage Conservation Districts. The City has retained a consultant to undertake the background research for this process.

Should previously undocumented built heritage resources or cultural heritage landscapes be discovered, they may be a new cultural heritage resources and therefore subject to the *Ontario Heritage Act*. The




proponent or person discovering the cultural heritage resources must cease alteration of the site immediately and engage a licensed cultural heritage consultant to carry out a Heritage Impact Assessment (HIA), in compliance with the *Ontario Heritage Act*.

3.3 HERITAGE ASSESSMENT OF THE SUBJECT PROPERTY'S EXISTING CONDITIONS






The King Street Heritage corridor and the Portsmouth Village (Map 3) contain Designated Heritage Buildings, Listed Heritage Buildings, and Provincially Significant/Easement Properties. Identification of those buildings and properties will ensure that their heritage value is an integrated component of the proposed forcemain and watermain redirection project. A location plan with indications of existing heritage resources, on or adjacent to the subject property, is presented as Map 1. Heritage Areas, Features and Protected Views are referenced in the City of Kingston Official Plan, Schedule 9 (Appendix A).

3.4 DESIGNATED HERITAGE BUILDINGS – PORTSMOUTH HARBOUR






At the municipal level, there are two types of designations under the *Ontario Heritage Act* – Part IV and Part V. Part IV designations refer to individual heritage properties. Part V designations refer a grouping of heritage properties known as a Heritage Conservation District. The purpose of this and the following sections are to refer to individual properties. It is important to note, however, that Portsmouth Village is currently in the process of being designated under Part V. Designation under the *Ontario Heritage Act* for Part IV and V is applied by the passing of a municipal by-law to recognize and to promote good stewardship of the property's cultural heritage value.

Location	Heritage File No.:	Constructed	Description	Photo
623 King St. W.	P18-233	1865	The property at 615-623 King Street West, also known as the Portsmouth Town Hall, St Johns House and Aberdeen Park is of cultural heritage value because of the unique design of the former Portsmouth Town Hall.	
9 Kennedy St.	P18-034	1840's	This building appears on the 1860 map with a name which has been stated to be S. Hay, but the owners name in the assessment roll for 1859 appears as James Hoy.	
140 Yonge St.	P18-415	pre 1841	This is one of the very few pre-1841 frame double dwellings, well-proportioned and with the original windows, remaining in the area.	

42 Kennedy St.	P18-170	1842	Agnus McLeods 1842 stone dwelling with ashlar quoins and string course, large windows and twin double chimneys was one of the largest stone houses in the village.	
638-640 King St. W.	P18-234	pre 1841	Built before 1841 this corner building was used for many years as a hotel. The first post office for the village was established here in 1856.	
112-114 Yonge St.	P18-567	pre 1858	102-114 Yonge Street – This long limestone terrace was built for McLeod, one of the partners who developed this area. It occupies an important corner and extends along the street facing the harbour.	
110 Yonge St.	P18-566	pre 1858	102-114 Yonge Street - This long limestone terrace was built for McLeod, one of the partners who developed this area. It occupies an important corner and extends along the street facing the harbour.	
46 Kennedy St.	P18-171	c. 1845; Period Restoration - 1969 by Jennifer McKendry	Built about 1845 for grocer Angus McVicar, this small stone cottage is in marked contrast to its larger neighbour and is typical of the working man's dwelling.	



658 King St. W.	P18-237	c. 1837	The small stone cottage built around 1837 for Richard Logan, with later brick addition, was important as the home of Logan who, with his partner McLeod, began the subdividing and development of land in the village.	
653-655 King St. W.	P18-235	c. 1848	Architect William Coverdale was commissioned by William Elliot to do plans for a double house on this site in 1856.	
657 King St. W.	P18-236	c. 1875	This brick fronted double house, built c. 1875 is an integral part of an important streetscape, providing contrast in materials and roofline.	
659 King St. W.	P18-286	c. 1875	This brick fronted double house, built c. 1875 is an integral part of an important streetscape, providing contrast in materials and roofline.	
661 King St. W.	P18-238	early 1840's	These stone row houses, on a street corner and extending along the main through street, are an important part of the village streetscape. Although built at different times the two halves are well unified in scale and design.	

663 King St. W.	P18-240	early 1840's	These stone row houses, on a street corner and extending along the main through street, are an important part of the village streetscape. Although built at different times the two halves are well unified in scale and design.	 <p>663 King Street West</p>
662 King St. W.	P18-239	1840's	This large stone building, an important part of the commercial streetscape, was built for William Mudie, long-time Reeve of the Village.	 <p>662 King St. W.</p>
665 King St. W.	P18-240	early 1840's	These stone row houses, on a street corner and extending along the main through street, are an important part of the village streetscape. Although built at different times the two halves are well unified in scale and design.	 <p>670 King Street West</p>
1 Church St.	P18-095	early 1840's	These stone row houses, on a street corner and extending along the main through street, are an important part of the village streetscape. Although built at different times the two halves are well unified in scale and design.	
670 King St. W.	P18-242	1878	This Victorian style limestone building, with central tower effect emphasizing the broken roofline, is taller than the neighbouring buildings but is compatible with the streetscape.	 <p>670 King St. West Portsmouth Orange Hall</p>

678-680 King St. W.	P18-243	c. 1849	This 1840's stone building has always been a commercial property, for most years as a tavern then as a grocery.	
716 King St. W.	P18-018	1855	It is of architectural and historic significance. This 1855 stone church, built for the Wesleyan Methodists in a severe Gothic Revival form, is in marked contrast to the Church of the Good Thief across the street.	
735 King St. W.	P18-016	1892-94	It is of architectural and historic significance. This church, although a mixture of styles, is the most dominant and most important visual aspect of Portsmouth. The limestone was quarried by prisoners and the church named after St. Dismas.	
743 King St. W.	P18-017	1892-94	It is of architectural significance. This handsome late Victorian dwelling for the priest of the adjacent church is remarkable for the strong contrast of rough limestone against red brick.	
1 Baiden St.	P18-051	c. 1850	Built about 1845 for merchant Samuel W. Brady and owned and occupied for many years by shoemaker John Pugh and his family, this well-proportioned frame dwelling is a good example of the larger wooden dwellings in the village.	

29 Baiden St.	P18-052	c. 1845	This residence was built in the 1840s. The exterior has been restored to its original architectural features.	
73 Baiden St.	P18-014	c. 1869	This limestone house built c. 1869 is a typical village dwelling of the period with verge boards adding a decorative touch to an otherwise simple residence.	
41-51 Church St.	P18-013	1849-1850	This Gothic style church built in 1849-50 to plans by William Cloverdale, was supported in its early years by Kingston families who had large estates in the area.	
97-101 Yonge St.	P18-413, P18-691, P18-691	1853	This is a fine example of a double dwelling and was designed by William Coverdale for the widow of a lake captain. The proportioned quoins, string course, windows and entrances mark it as a building of significance.	



90 Yonge St.	P18-412	c. 1848	This brick dwelling was built about 1848 for William Patterson whose Brewery was later sold to Fisher. One of the few early brick dwellings in the village, it still has the ribbed metal roof once required for fire insurance.	
66 Yonge St.	P18-411	pre 1850	John Craig, an accountant in the shipyard, owned this frame dwelling where the Portsmouth Village met for the first time on January 17, 1859. Craig, Clerk of the Council, was paid 17.	
61 Yonge St.	P18-410	c. 1850	This stone house was associated with the steam sawmill which operated during the ship building era of Portsmouth's past.	
107 Logan St.	P18-245	1853	This stone cottage was designed by William Coverdale for Maxwell Strange who owned the Tannery nearby. It was built by 1855 and occupied by a senior workman.	
34 Richard St.	P18-341	pre 1843	The stonework of this small pre-1843 dwelling is of interest. The rubblestone front is laid in courses, the sides and rear in random. The corner ashlar quoins are heavy in proportion to the building and the doorway is inset.	



2 Alwington St.	P18-009	c. 1875	This house, built c. 1875 on an important corner, belonged at one time to the Penitentiary Service. The large inset chimneys, regularly spaced large windows and hipped roof porch give distinction to this limestone dwelling.	
40 Sir John A Macdonald	P18-575	c. 1875	The property at 40 Sir John A. Macdonald Boulevard, also known as the Prison for Women, P4W., is a landmark in both Kingston and Canada.	



Source: City of Kingston's Cultural Resources Mapping, 2014


3.5 LISTED HERITAGE BUILDINGS – PORTSMOUTH HARBOUR



Section 27 of the *Ontario Heritage Act* allows municipalities to list or inventory properties of cultural heritage value that are not designated under Part IV or Part V of the Act. These properties are not afforded the same level of protection as a designated property.


Location	Heritage File No.:	Constructed	Description	Photo
37 Kennedy St.	P18-798	pre 1846	<p>This two-storey dwelling, located on a corner at 37 Kennedy Street, is of cultural heritage value and interest because of its physical/design values and its contextual values.</p> <p>The property has physical/design value due to its scale and massing. Other elements reflecting its physical/design value include its three bay frame construction and double hung sash windows. The west side of the house is characterized by its extended roof slope over a lean-to addition. On the Yonge Street side of the dwelling the same verge board is quite lace-like in appearance and the wall breaks into a three sided bay window in the lower storey.</p> <p>The dwelling's contextual value derives from its importance in defining and supporting the character of Kennedy Street.</p>	
643 King St. W.	P18-811	pre 1844	<p>This frame commercial building, located at 643 King Street West, is of cultural heritage value and interest because of its physical/design values and its contextual values.</p> <p>The property has physical/design value due to its scale and massing. Other elements reflecting its physical/design value include the building's two storey frame construction, five bays wide, with a two bay wing at the rear. The main building is characterized by a hipped roof structure with a central doorway and a square headed transom.</p>	

			<p>The windows of the house are character defining elements and consist of double hung six over six pane sashes. Along the north wall stands a one-storey, lean-to addition with a stairway going up and over it to the doorway on the second storey. Another two bay wing, located on the southwest corner, consists of a gabled roof, a doorway on the second storey, a square-headed window under the peak of the gable and two brick chimney stacks.</p> <p>The building's contextual value derives from its importance in maintaining and supporting the character of Portsmouth Village.</p>	
711 King St. W.	P18-813	c. 1843	<p>This one and a half storey dwelling, located at 711 King Street West, is of cultural heritage value and interest because of its physical/design values and its contextual values.</p> <p>The property has physical/design value due to its scale and massing. Other elements reflecting its physical/design value include the dwelling's one and a half storey rectangular construction, its central neoclassical entranceway with side lights and pilaster and entablature treatment. There is also evidence of a stone foundation underneath later structural changes.</p> <p>The dwelling's contextual value derives from its importance to maintaining and supporting the character of King Street.</p>	
617 Union St.	P18-874	c. 1850	<p>This two-storey dwelling is of cultural heritage value and interest because of its physical/design values.</p> <p>The property has physical/design value. Character defining elements that reflect this value include its scale and massing.</p>	

			<p>Other elements reflecting its physical/design value include its two-storey, three bay construction with gabled roof. The surface material of the dwelling consists of simple stucco and decorative door frames and wooden surrounds. The centre of the house is characterized by a doorway with transom light divided into four panes and two double hung windows on either side.</p>	
61 Baiden St.	P18-736	c. 1865	<p>This small 19th century cottage, located at 61 Baiden Street, is of cultural heritage value and interest because of its physical/design values and its contextual values. The property has physical/design value. Character defining elements that reflect this value include its scale and massing. The cottage, which faces south, is characterized by one and a half storey construction. Its steep sloping roofline is a continuation of the north slope of the main roof. The central doorway is enclosed by a porch and its entranceway, as well as the entranceway into the house, has a square-headed transom. This small cottage has contextual value as an important example in defining, maintaining and supporting the character of historical Baiden Street.</p>	
84 Yonge St.	P18-923	c. 1842	<p>This two-storey limestone dwelling, located at 84 Yonge Street, is of cultural heritage value and interest because of its physical/design values and its contextual values. The property has physical/design value. Character defining elements that reflect this value include its scale and massing. Other elements reflecting its physical/design value include its limestone, rough ashlar and rubble construction; radiating voussoirs, double hung sash</p>	

			<p>windows. The present door has the original transom light. To the rear of the dwelling is a one-storey kitchen wing characterized by its rubble limestone construction and an entrance on the north side and a window on the south. Above the kitchen wing, the house has two double hung windows and a centrally located double casement window, which appears to have been a pair of French doors.</p> <p>The property's contextual value derives from its importance to maintaining and supporting the character of Portsmouth Village.</p>	
74 and 76 Yonge St.	P18-921 P18-922	c. 1845	<p>This unit, which is half of a storey and a half double house located at 74-76 Yonge Street, is of cultural heritage value and interest because of its physical/design values. The property has physical/design value. Character defining elements that reflect this value include</p> <p>its scale and massing. Other elements reflecting its physical/design value include its one and a half storey construction, projecting base with a concrete covering, gable roofed dormer and inset brick chimneys. The entrances to the dwellings are side by side in the center of the facade each with a simple door and transom light. This is all below a large dormer with a gable roof and inset brick chimneys on each end. The openings of the back of the dwelling are characterized by a central door flanked on either side by a pair of double hung windows and a later addition of another double hung window.</p>	

101 and 103 Logan St.	P18-815 P18-816	pre 1847	<p>This simple two storey house duplex, located at 101-103 Logan Street, is of cultural heritage value and interest because of its physical/design values and its contextual values.</p> <p>The property has physical/design value. Character defining elements that reflect this value include its scale and massing. Elements reflecting the physical/design values include its double, two-storey, hammer-dressed limestone construction with a hipped roof and remaining six on six double hung sash windows. A pair of doors are located side by side each acting as the main entrance to the separate units. They are sheltered by a simple porch with a shed. A limestone chimney is located on one end of the roof.</p> <p>The west elevation has an enclosed wooden porch with a shed roof and to the rear a central doorway, covered with a shed. The house's contextual value derives from its importance in maintaining and supporting the character of Logan Street.</p>	
25 Richard St.	P18-879	c. 1864	<p>This two-storey frame and stone residence is of cultural heritage value and interest because of its physical/design values and its contextual values.</p> <p>The property has physical/design value. Character defining elements that reflect this value include its scale and massing. Other elements reflecting its physical/design value include its two-storey frame and stone construction, gabled roof and simple double hung sash windows. To the west is a one-storey addition covered with wood shingles and a sloping shed roof. An addition, consisting of two sections, both with a shed roof, is attached to the eastern side of the</p>	

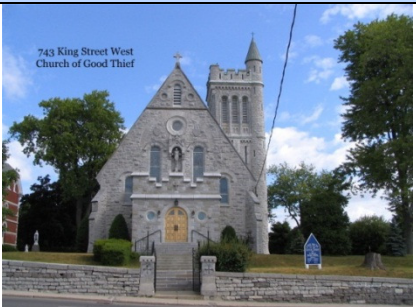

			<p>rear and consists of a tall narrow chimney.</p> <p>The residence's contextual value derives from its importance to the maintenance and support of the character of Richard Street.</p>	
18 Alwington St.	P18-724	c. 1870	<p>Built c.1870, this family regency cottage, located at 18 Alwington Avenue, is of cultural heritage value and interest because of its physical/design values, its historical association, and its contextual values.</p>	

Source: City of Kingston's Cultural Resources Mapping, 2014
 City of Kingston Properties of Culture heritage Value and Interest ("Listed Properties"), Kingston, 2011

3.6 PROVINCIALY SIGNIFICANT/EASEMENT PROPERTY – PORTSMOUTH HARBOUR

In addition to Designated and Listed properties, the province owns many properties whose history contributes to the greater history of Ontario. The province has developed standards and guidelines for the conservation of provincial heritage properties to preserve, protect and promote the cultural heritage value of these provincially significant properties.



Heritage easement agreements are another tool to ensure a property's preservation. It is a legal agreement registered on title between the City or the Ontario Heritage Trust and the owner of the property. Heritage easement agreements are entered into to ensure heritage attributes of a building are maintained in perpetuity and may also set out permitted alterations and development.


Location	Heritage File No.:	Construction	Description	Photo
735 King St. W.	P18-016	1892-94	It is of architectural and historic significance. This church, although a mixture of styles, is the most dominant and most important visual aspect of Portsmouth. The limestone was quarried by prisoners and the church named after St. Dismas.	
752 King St. W.	P18-244	1841 - Rockwood House; 1859-1868	Rockwood House: On July 23, 1841, tenders were called "for erecting an Italian Villa near Hatters Bay for John S. Cartwright, Esq., according to plans and specifications drawn for the same.	

Source: City of Kingston's Cultural Resources Mapping, 2014

3.7 NATIONAL HISTORIC SITES

National historic sites are places of profound importance to Canada, contributing a sense of time, identity, and place to our understanding of Canada as a whole and form the system of National Historic Sites of Canada monitored by Parks Canada. Parks Canada supports the Historic Sites and Monuments Board of Canada (HSMBC), which advises the Minister of Canadian Heritage on national historic significance.

Location	Heritage File No.:	Construction	Description	Photo
560 King St. W.	P18-705	1834	Kingston Penitentiary National Historic Site of Canada is located in the western suburbs of the City of Kingston, Ontario, on the east side of Portsmouth Harbour. From the exterior, its massive stone wall and north gate provide an intimidating and memorable landmark. A group of early 19th century classical stone buildings, including the original cellblock, remain within the walls. The official recognition refers to the walled compound, the former warden's residence (now Canada's Penitentiary Museum) located across from the main gate, and the former deputy warden's house, now the Isabel McNeil House.	
555 King St. W.	P18-704	1834	Correctional Service of Canada Museum - The Former Warden's Residence, also known as Building A1, overlooks Kingston Penitentiary from its location outside of the precinct's walls. Designed in the Italianate style, the residence has a square plan and features a projecting bay, a classically detailed stone porch and a hipped roof with an array of ironwork and decorative detailing. The designation is confined to the footprint of the building.	

525 King St. W.	P18-706		Deputy Warden's House	
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Source: City of Kingston's Cultural Resources Mapping, 2014
 Canada's Historic Places, Parks Canada, 2014

3.8 CULTURAL HERITAGE LANDSCAPES/PROTECTED VIEWS

As referenced in the City of Kingston Official Plan, Schedule 9 (Appendix A), there are also Protected Views. Given that the nature of the work is subsurface, the project will not impact the two protected views.

4 POTENTIAL IMPACTS

4.1 DEVELOPMENT CONTEXT

WSP Canada Inc. (WSP) was retained by Utilities Kingston to prepare a Heritage Impact Statement (HIS) for the area to be impacted by the proposed forcemain and watermain which extends from 455 Front Road to 560 King Street West, City of Kingston, Geographic Township of Kingston and the County of Frontenac in the Province of Ontario (Map 2).

The subject property is defined as the Right of Way (ROW) to be impacted by the undertaking over approximately 3.4 km. In addition, the area of survey includes a small piece of property immediately east of the Cataraqui Bridge north of Front Road and a section of previously disturbed land at Aberdeen Park (Maps 3, 4 and 5).

This HIS has been triggered by Utilities Kingston's intent to evaluate the option of redirecting the flow at Portsmouth Pumping Station (PS) from Ravensview to Cataraqui Bay Waste Water Treatment Plant and establishing the trunk watermain connection on Front Road between Sand Bay Lane and Sir John A. MacDonald Boulevard as part of the City's unified Master Plan for the provision of treated water. The HIS is prepared as a component of the Environmental Assessment (EA) process. The City of Kingston is the approval authority under the Planning Act. Having completed the Screening for Built Heritage and Cultural Heritage Landscapes, it has been determined that there is a requirement to complete a HIS as one of the conditions for approval to ensure that the proponent meets their legal obligations under the *Ontario Heritage Act*.

4.2 POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT ON THE HERITAGE RESOURCES ON OR ADJACENT TO THE SITE

During the screening for impacts to built heritage and cultural heritage landscapes, WSP and Lindsay Lambert of the City of Kingston Heritage Planning staff identified three general areas of concern (Appendix B. These areas must be considered in all design and construction activities associated with the project.

1. **Destruction, removal or relocation** of any, or part of any, heritage attribute or feature.
2. **Alteration** (which means a change in any manner and includes restoration, renovation, repair or disturbance).
3. **Soil disturbance** such as a change in grade, or an alteration of the drainage pattern, or excavation, etc.

As the area of the undertaking subject property abuts to one or more listed or designated heritage properties, it is important to identify development impacts and provide recommended mitigation strategies to ensure the heritage resources on the adjacent properties are not negatively impacted.

4.2.1 DESTRUCTION, REMOVAL OR RELOCATION

Within the study area any destruction would be limited to existing infrastructure in previously disturbed areas located in the ROW for the purposes of reinstalling or upgrading services required for the proposed Portsmouth PS redirection and new watermain interconnection with the exception of Aberdeen Park where surface features, such as vegetation, would be removed to allow for underground installations. Older infrastructure located in these areas would be replaced in this process. As the work is confined to previously disturbed ground, no heritage buildings are contemplated to be destroyed, removed, or relocated as part of the undertaking. In summary, potential impacts to built heritage from proposed work could arise from:

- Surface Feature removal/destruction (roadways, vegetation, sidewalks, etc...)
- Removal of underground infrastructure (piping, forcemains, catch basins, etc...)
- Short-term exposure to heavy vibration/noise during construction

4.2.2 ALTERATION

The proposed infrastructure upgrades and development triggers alteration to surface features limited to within the ROW and Aberdeen Park Area. Alteration to these features would be temporary to allow for underground infrastructure installation where reinstatement will mostly likely match the existing conditions or provide opportunities towards enhancements to sidewalks and roadways, no alterations to designated heritage buildings are to occur in the proposed undertakings. In summary, potential impacts to built heritage from proposed work could arise from:

- Permanent Surface Condition Alteration within ROW (roadways, vegetation, sidewalks, etc.)
- Temporary disruption and access to built heritage while alterations take place (parking, traffic, stores, etc.).

4.2.3 SOIL DISTURBANCE

Soil disturbance is expected in the identified study area to accommodate the proposed installations necessary for any redirection of the sanitary sewer system for the Portsmouth PS and proposed watermain interconnection. All soil disturbed is to be reinstated with new sub-base material necessary for installing piping and structures where no under-mining of built heritage buildings is expected. Existing material is expected to be reused as fill or relocated off site. Disturbance to soil surrounding the outside of buildings is expected to be minimal and limited to a single wall along streetscapes from excavations.

In summary, potential impacts to built heritage from proposed work could arise from:

- Temporary soil disturbance during construction (roadways, sidewalks, streetscapes, etc.)
- Potential of large machinery disturbing soil during construction
- Soil excavation may expose heritage structures to dust, or vibration greater than normal
- Potential for soil disturbance near built heritage buildings.
- Removal of existing soil material from site.

4.3 COMPLETED CULTURAL HERITAGE STUDIES – ARCHAEOLOGY

A Stage 1-2 Archaeological Assessment of the Portsmouth Pumping Flow Direction and Front Road Trunk Watermain Interconnection was submitted to the Ministry of Tourism, Culture and Sport on March 13, 2014 and has been accepted into the Ontario Public Register of Archaeological Reports (Appendix C). The study involved a review of documents pertaining to the property including mapping and local histories. A property inspection and test pit survey was conducted on July 24, 2013.

The area under investigation (road ROW, Aberdeen Park and areas east of the Cataragui Bridge) has been disturbed. The area holds archaeological potential for the discovery of precontact archaeological sites and high potential for the discovery of historic Euro-Canadian sites. However, road construction, sewer and infrastructure development has damaged the integrity of any archaeological resources and has removed the archaeological potential.

Archaeological recommendations have been made based on the background historic research, property inspection, locations of known or registered archaeological sites, previous archaeological assessments, indicators of archaeological potential and test pit survey. The archaeological report notes that as the archaeological potential has been removed in the area of the undertaking (road ROW, Aberdeen Park and area east of the Cataragui Bridge). No further archaeological assessments are recommended.

4.4 MITIGATION OPTIONS, CONSERVATION METHODS AND PROPOSED ALTERNATIVES

Based on the anticipated disturbances and potential for impacts to heritage features from the proposed development there are various options and methods that will be required to ensure adverse effects to cultural heritage features are either minimized or eliminated. These options and methods will be consistent with best management practices (BMP) used in standard construction and heritage conservation and would entail preparation of a conservation and adaptive reuse plan specific to the proposed work. The Ontario Ministry of Tourism, Culture and Sport provides eight (8) BMP's for conservation towards built heritage.

1. Conservation work should be based on historic documentation such as historic photographs, drawings and physical evidence.

2. Do not move buildings unless there is no other means to save them
3. Repair/conservate - rather than replace building materials and finishes, Except where absolutely necessary.
4. Repair or return resources to its prior condition, without altering its integrity.
5. Do not destroy later additions to a building or structure solely to restore to a single time period.
6. Alterations should be able to be returned to original conditions. This conserves earlier building design and technique.
7. Buildings or structures should be recognized as products of their own time, and new additions should not blur the distinction between old and new.
8. Ease of maintenance for continuous care.

4.5 DISCUSSION

With the identification of proposed development there are various mitigation measures and methods suitable to satisfy BMP's considered to protect built cultural heritage features along and adjacent to the proposed work area as summarised in the followings tables. Mitigation measures are designed to prevent impacts to cultural heritage resources.

4.5.1 DESTRUCTION, REMOVAL OR RELOCATION

The potential impacts from destruction, removal or relocation towards built heritage features and cultural landscapes are limited since proposed work is to occur only within the ROW and on previously disturbed ground. Proposed work is not anticipated to adversely affect protected views or heritage buildings as shown on Map 3. The following table summarises the proactive mitigation measures applicable to protecting heritage attributes from destruction, removal or relocation.

Potential Impact	Conservation/Mitigation Measures	Supplementary Items and Alternative Plans	Applicable BMP's
Surface Feature removal/destruction (roadways, vegetation, sidewalks, etc...)	Design and locate new infrastructure required along routes with existing trenches or with the largest setback from heritage buildings (centre of ROW within roadway) and along the least compact streetscapes wherever possible.	Construction Documents Removals/Reuse Plan Traffic Control Plan	1, 2, 4, 5, 6, 8
	Temporarily relocate sensitive cultural features from site where applicable and reinstate after construction work. (Eg. Historical Plaques)	Construction Documents Removals/Reuse Plan Site Plan Control	
	Replace vegetation with native or adaptive plants in accordance with City of Kingston Guidelines.	Construction Documents Removals/Reuse Plan Tree Preservation Study Site Plan Control	

	Replace surface features removed such as roadways and sidewalks with matching features and materials (Eg. Stone, asphalt, concrete).	Construction Documents Removals/Reuse Plan	
	Negate use of construction equipment not suitable for compact streetscapes to avoid damage from mobilization.	Removals/Reuse Plan Seasonal Construction Phasing Traffic Control Plan	
	Negate construction methods not-suitable for work in small streetscape (such as blasting) to avoid damage from vibration.	Removals/Reuse Plan Seasonal Construction Phasing Noise/Vibration Monitoring Traffic Control Plan	
	Implement an environmental protection plan which addresses spill control, waste disposal, waste water management, traffic control, erosion & sediment control and vegetation preservation details. Existing trees to be preserved with buffer zones of ½ the tree drip line.	Construction Documents Removals/Reuse Plan Tree Preservation Study Site Plan Control	
Removal of underground infrastructure (piping, forcemains, catch basins, etc.)	Remove deteriorated non-heritage infrastructure off-site and fill excavations with suitable material and replacement structures as applicable.	Construction Documents Removals/Reuse Plan	1, 2, 4, 5, 8
	Minimize disturbance from removal by using smaller equipment for excavations. Float larger equipment or materials to avoid surface wear and tear to infrastructure not to be replaced.	Seasonal Construction Phasing Traffic Control Plan	
	Negate use of large construction equipment not suitable for compact streetscapes.	Removals/Reuse Plan Seasonal Construction Phasing Traffic Control Plan	
	Negate construction methods not-suitable for work in small streetscape (such as blasting) to avoid damage from vibration.	Removals/Reuse Plan Seasonal Construction Phasing Noise/Vibration Monitoring Traffic Control Plan	
Short-term exposure to heavy vibration/noise during construction	Prior to work, document pre-condition of historical buildings using a qualified heritage professional. Follow Approach for Addressing Vibration Impact on Heritage Buildings for Appropriate Mitigation (Appendix D) and implement a building monitoring program during construction to assess effects from exposure. Keep heavy equipment over existing roadways within ROW.	Seasonal Construction Phasing Noise/Vibration Monitoring Traffic Control Plan	1, 2, 3

	Negate use of loud construction equipment which use powder actuated equipment. Conduct proposed work in accordance with City of Kingston Noise by-laws	Seasonal Construction Phasing Noise/Vibration Monitoring Site Plan Control	
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4.5.2 ALTERATIONS

Alterations to the streetscape are anticipated to reflect the existing conditions or improvements after proposed underground infrastructure installations are completed with no adverse impacts anticipated towards protected views or heritage attributes. Since the majority of proposed alterations are to occur within the ROW adjacent to built heritage and cultural landscapes there is still the potential of temporary access restrictions and temporary disruption to heritage features since proposed work is to occur within the ROW and on previously disturbed ground. The following table summarises the proactive mitigation measures applicable to protecting heritage attributes from alterations.

Potential Impact	Conservation/Mitigation Measures	Supplementary Items and Alternative Plans	Applicable BMP's
Permanent Surface Condition Alteration within ROW (roadways, vegetation, sidewalks, etc.)	Design and locate new infrastructure required along routes with existing trenches or with the largest setback from heritage buildings (centre of ROW within roadway) and along the least compact streetscapes wherever possible.	Construction Documents Removals/Reuse Plan Traffic Control Plan	1-8
	Complete consultation with public, property owners and development teams for property specific concerns with work along the ROW.	Removals/Reuse Plan Seasonal Construction Phasing Environmental Protection Plan Site Plan Control	
	Finish streetscape work in accordance with City of Kingston Design standards and collaborate with utility providers.	Construction Documents Removals/Reuse Plan Site Plan Control Environmental Protection Plan	
	Prior to work, document pre-condition of historical buildings using a qualified heritage professional. Coordinate with City of Kingston for pre and post condition assessment.	Removals/Reuse Plan Site Plan Control Noise/Vibration Monitoring	
Temporary disruption and access to built heritage while alterations take place (parking, traffic, stores, etc.)	Regular visual inspections as part of a monitoring program during construction to assess effects from disruption and access to built heritage.	Seasonal Construction Phasing Noise/Vibration Monitoring Traffic Control Plan	1-8

	Complete consultation with public, property owners and development teams for property specific concerns with work along the ROW.	Removals/Reuse Plan Seasonal Construction Phasing Traffic Control Plan Site Plan Control	
	Prior to work, document pre-condition of historical buildings using a qualified heritage professional. Coordinate with City of Kingston for pre and post condition assessment. Follow Approach for Addressing Vibration Impact on Heritage Buildings for Appropriate Mitigation (Appendix D)	Removals/Reuse Plan Site Plan Control Noise/Vibration Monitoring Traffic Control Plan	

4.5.3 SOIL DISTURBANCE

It is anticipated that the greatest potential impact to heritage features is from soil disturbance from proposed work adjacent to built heritage during construction activities. Soil disturbance is only limited to within the ROW and within areas such as Aberdeen Park where previously disturbed ground is located along existing pipe trenches, however in certain cases deeper excavations would be necessary to accommodate new underground installations. No adverse effects to adjacent built-heritage is anticipated through conventional construction techniques, however the following table summarises the proactive mitigation measures applicable to protecting heritage attributes from soil disturbance.

Potential Impact	Conservation/Mitigation Measures	Supplementary Items and Alternative Plans	Applicable BMP's
Temporary soil disturbance during construction (park, roadways, sidewalks, streetscapes, etc.)	Follow approved Stage 1-2 Archaeological Assessment for appropriate mitigation of discovered cultural resources. (March 13, 2014)	Construction Documents Removals/Reuse Plan Site Plan Control	1, 2, 4, 5, 8
	Implement an environmental protection plan which addresses erosion & sediment control details. Soil/material removed for reuse should be stockpiled and protected to maintain integrity.	Construction Documents Removals/Reuse Plan Seasonal Construction Phasing	
Potential of large machinery disturbing soil during construction	Design and locate new infrastructure required along routes with existing trenches or with the largest setback from heritage buildings (centre of ROW within roadway) and along the least compact streetscapes wherever possible.	Construction Documents Removals/Reuse Plan Traffic Control Plan	1, 2, 4, 5, 8
	Dust suppression activities to include wetting and use of dust suppressants such as calcium when proposed work is conducted during dry conditions.	Construction Documents Removals/Reuse Plan Seasonal Construction Phasing Environmental Protection Plan	

	Negate construction methods not-suitable for work in small streetscape (such as blasting) to avoid damage from vibration and further disturbance to soil.	Construction Documents Removals/Reuse Plan Seasonal Construction Phasing Environmental Protection Plan	
Soil excavation may expose heritage structures to dust, or vibration greater than normal	Design and locate new infrastructure required along routes with the largest setback from heritage buildings (centre of ROW within roadway) and along the least compact streetscapes wherever possible.	Construction Documents Removals/Reuse Plan Traffic Control Plan	1, 2, 4, 5, 8
	Dust suppression activities to include wetting and use of dust suppressants such as calcium when proposed work is conducted during dry conditions.	Construction Documents Removals/Reuse Plan Seasonal Construction Phasing Environmental Protection Plan	
	Implement a building monitoring program during construction to assess effects from exposure. Keep heavy equipment over existing roadways within ROW. Follow Approach for Addressing Vibration Impact on Heritage Buildings for Appropriate Mitigation (Appendix D).	Seasonal Construction Phasing Noise/Vibration Monitoring Traffic Control Plan	
Potential for soil disturbance near built heritage buildings.	Limit size of excavations and trenches to only a single face near built heritage. Provide 2m excavation set-backs from buildings where available.	Construction Documents Removals/Reuse Plan Seasonal Construction Phasing Traffic Control Plan	1, 2, 4, 5, 8
	Prior to work, document pre-condition of historical buildings using a qualified heritage professional. Implement a building monitoring program during construction and provide necessary shoring to buildings for excavations deeper than building foundations. Shoring, bracing and underpinning to be designed by a professional Engineer Licensed in the Province of Ontario Coordinate with City of Kingston for pre and post condition assessment.	Construction Documents Removals/Reuse Plan Seasonal Construction Phasing Traffic Control Plan	
Removal of existing soil material from site.	Follow approved Stage 1-2 Archaeological Assessment for appropriate mitigation of discovered cultural resources. (March 13, 2014)	Construction Documents Removals/Reuse Plan Site Plan Control	1, 2, 4, 5, 8
	Replace removed material with native or appropriate fill to City of Kingston Design Guidelines and Ontario Provincial Specification Standards.	Construction Documents Removals/Reuse Plan	

4.6 SCHEDULE AND REPORTING STRUCTURE

The schedule and reporting structure for implementing the mitigation strategies will be determined in consultation with the City of Kingston Planning and Development Department.

5 RECOMMENDATIONS

This HIS has been triggered by Utilities Kingston's intent to evaluate the option of redirecting the flow at Portsmouth Pumping Station (PS) from Ravensview to Cataraqui Bay Waste Water Treatment Plant and establishing the trunk watermain connection on Front Road between Sand Bay Lane and Sir John A. MacDonald Boulevard as part of the City's unified Master Plan for the provision of treated water. The HIS is prepared as a component of the Environmental Assessment (EA) process. The City of Kingston is the approval authority under the Planning Act. Having completed the Screening for Built Heritage and Cultural Heritage Landscapes, it has been determined that there is a requirement to complete a HIS is one of the conditions for approval to ensure that the proponent meets their legal obligations under the *Ontario Heritage Act*.

This study involved a review of documents pertaining to the property including mapping and local histories and consultation with the City of Kingston Heritage Planning staff to scope the terms of the HIS.

The HIS does not seek to designate any structures or landscapes in the area under investigation (road ROW, Aberdeen Park and areas east of the Cataraqui Bridge) as areas having cultural heritage value or interest. The area to be physically impacted by the proposed activities has already been disturbed by road construction, sewer and infrastructure development. However, due to the proximity of the work to both listed and designated heritage structures and landscapes in and around the Portsmouth Village and King Street Heritage corridor, a statement of potential impacts and mitigation measures is required under the Environmental Assessment to satisfy the Ontario Heritage Act requirements.

- **Design and locate new infrastructure required along routes with the largest setback from heritage buildings (centre of ROW within roadway) and along the least compact streetscapes wherever possible;**
- **Prior to construction, the contractor must become familiar with the locations of all known built heritage resources and cultural heritage landscapes adjacent to the area of the undertaking and, as outlined herein, take steps to prevent any impact to those heritage resources;**
- **Prior to construction, a vibration susceptibility analysis (as outlined herein) must be conducted to establish baseline data on identified built heritage resources. Should the analysis indicate that a resource will be unduly impacted, a building monitoring program must be implemented during construction;**

- **If during the process of development previously undetected built heritage resources or cultural heritage landscapes are identified, work in the area should cease and the developer or their agents should immediately notify the City of Kingston's Heritage Planner (613-546-4291, ext. 1386).**
- **During construction and after the completion of construction activities, the City of Kingston heritage planning staff will inspect the property to confirm that there are no unanticipated adverse impacts on the built heritage or cultural heritage landscapes. Should any damage be done to existing structure, the City of Kingston's Policy on Masonry Restoration in Heritage Buildings is to be followed.**

6 RESOURCES

Individuals Contacted

Lindsay Lambert, MCIP, RPP, Senior Planner, Planning and Development Department, Community Services, City of Kingston

Shirley Bailey, MCIP, RPP, Manager of Heritage and Urban Design, Planning and Development Department, Community Services, City of Kingston

Local Resources

City of Kingston's Municipal Register of Identified Heritage Properties

<http://www.cityofkingston.ca/documents/10180/39676/Heritage+Register/5c73e32e-29db-4c8a-a67a-9fa708faf940>

City of Kingston's Cultural Resources Mapping

<https://www.cityofkingston.ca/explore/culture-map>

City of Kingston's Official Plan

<http://www.cityofkingston.ca/documents/10180/541790/Official+Plan/17793cad-90db-4651-8092-16c587600001>

City of Kingston's Archaeological Master Plan

http://www.cityofkingston.ca/documents/10180/14295/MasterPlan_Archaeological_Planning.pdf/a9a15045-a677-4d3a-8105-09baefceeabe

City of Kingston's Policy on Masonry Restoration in Heritage Buildings

Provincial Standards and Resources

Ontario Heritage Tool Kit

<http://www.culture.gov.on.ca/english/heritage/Toolkit/toolkit.ht>

Ontario Ministry of Tourism, Culture and Sport: Heritage Conservation Principle's for Land Use Planning

http://www.culture.gov.on.ca/english/heritage/info_sheets/info_sheet_landuse_planning.htm

Ontario Ministry of Tourism, Culture and Sport: Eight Guiding Principles in the Conservation of Historic Properties

http://www.culture.gov.on.ca/english/heritage/info_sheets/info_sheet_8principles.htm

Ontario Ministry of Culture, Tourism and Sport: Archaeological Assessments

http://www.mtc.gov.on.ca/en/archaeology/archaeology_assessments.shtml

National and International Standards and Resources

Canadian Register of Historic Places

http://www.historicplaces.ca/visit-visite/rep-reg_e.aspx

Parks Canada Standards and Guidelines for the Conservation of Historic Places in Canada
http://www.pc.gc.ca/docs/pc/guide/nldclpc-sgchpc/index_E.asp

Parks Canada National Historic Sites of Canada
http://www.pc.gc.ca/progs/lhn-nhs/index_e.asp

International Council of Monuments and Sites (ICOMOS): Appleton Charter
<http://www.international.icomos.org/charters/appleton.pdf>

Additional conservation principles can be found within the following documents:

Mark Fram

Well Preserved: The Ontario Heritage Foundation's Manual of Principles and Practice for Architectural Conservation

Public Works Canada

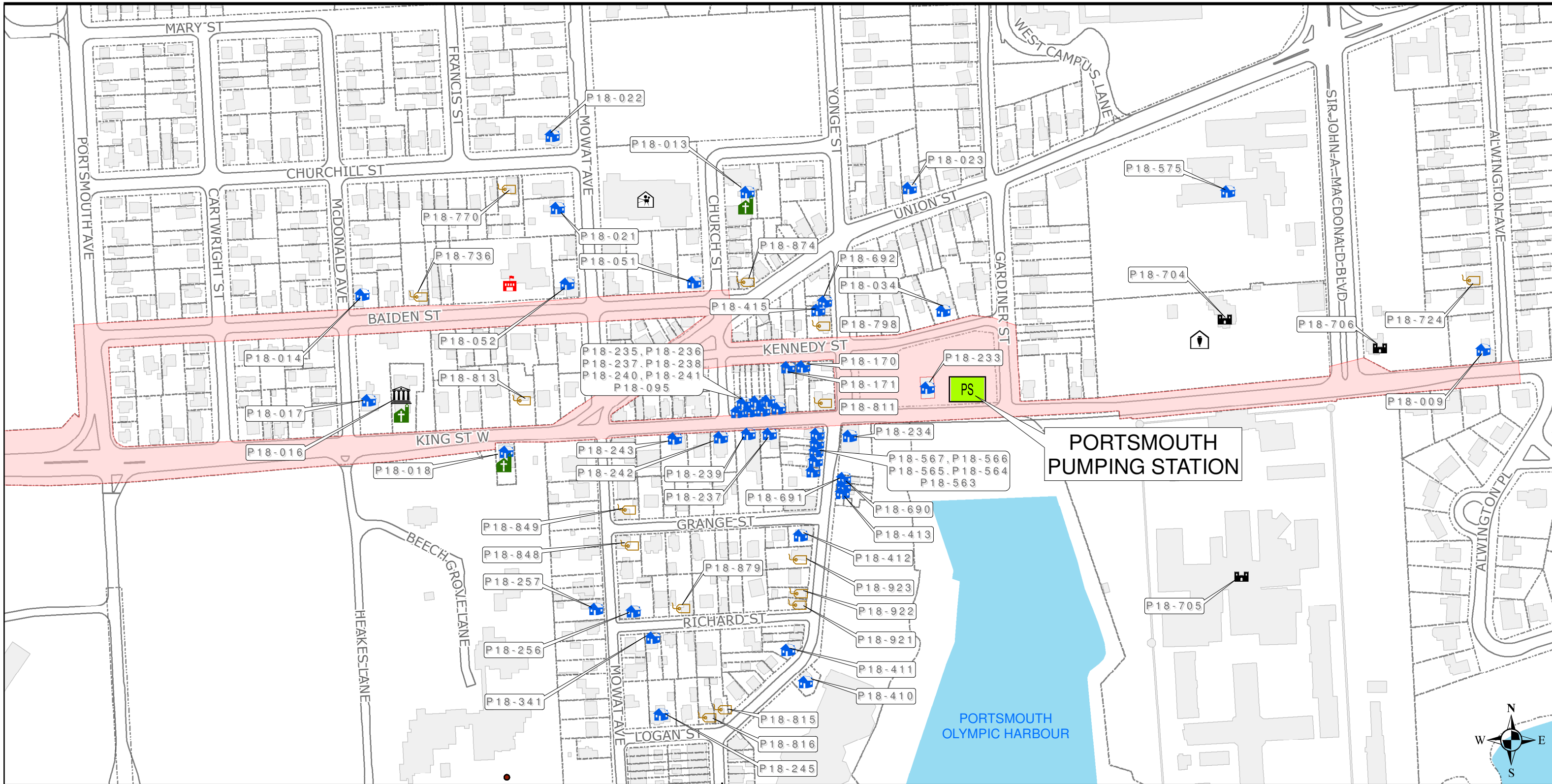
Canada's Federal Heritage Buildings Review Office Code of Practice

Williamson, R. et al.

Master Plan of Archaeological Resources – City of Kingston – Technical Report. Archaeological Services Inc., Toronto, Ontario.

7 MAPS

See the following pages:



LEGEND:

	DESIGNATED HERITAGE PROPERTY		NATIONAL HISTORIC SITE
	LISTED HERITAGE PROPERTY		MUSEUM
	PROVINCIALY SIGNIFICANT HERITAGE PROPERTY		PUMPING STATION
	PLACE OF WORSHIP		STUDY AREA
	THEATRE		
	SCHOOL		

TITLE: EXISTING BUILT HERITAGE FEATURES

DATE: APRIL, 2014

PROJECT: 131-18048-00

SCALE: 1:3,000

0 40 80 160 Meters

Portsmouth PS Flow Direction & Front Rd Trunk Watermain Interconnection
 City of Kingston, Ontario

<p>1224 GARDINERS RD, SUITE 201 KINGSTON, ONTARIO, CANADA, K7P 0G2 WWW.WSPGROUP.COM</p>	<p>UTILITIES KINGSTON P.O. BOX 790, KINGSTON, ONTARIO, K7L 4X7</p>	<p>MAP</p> <p>1</p>



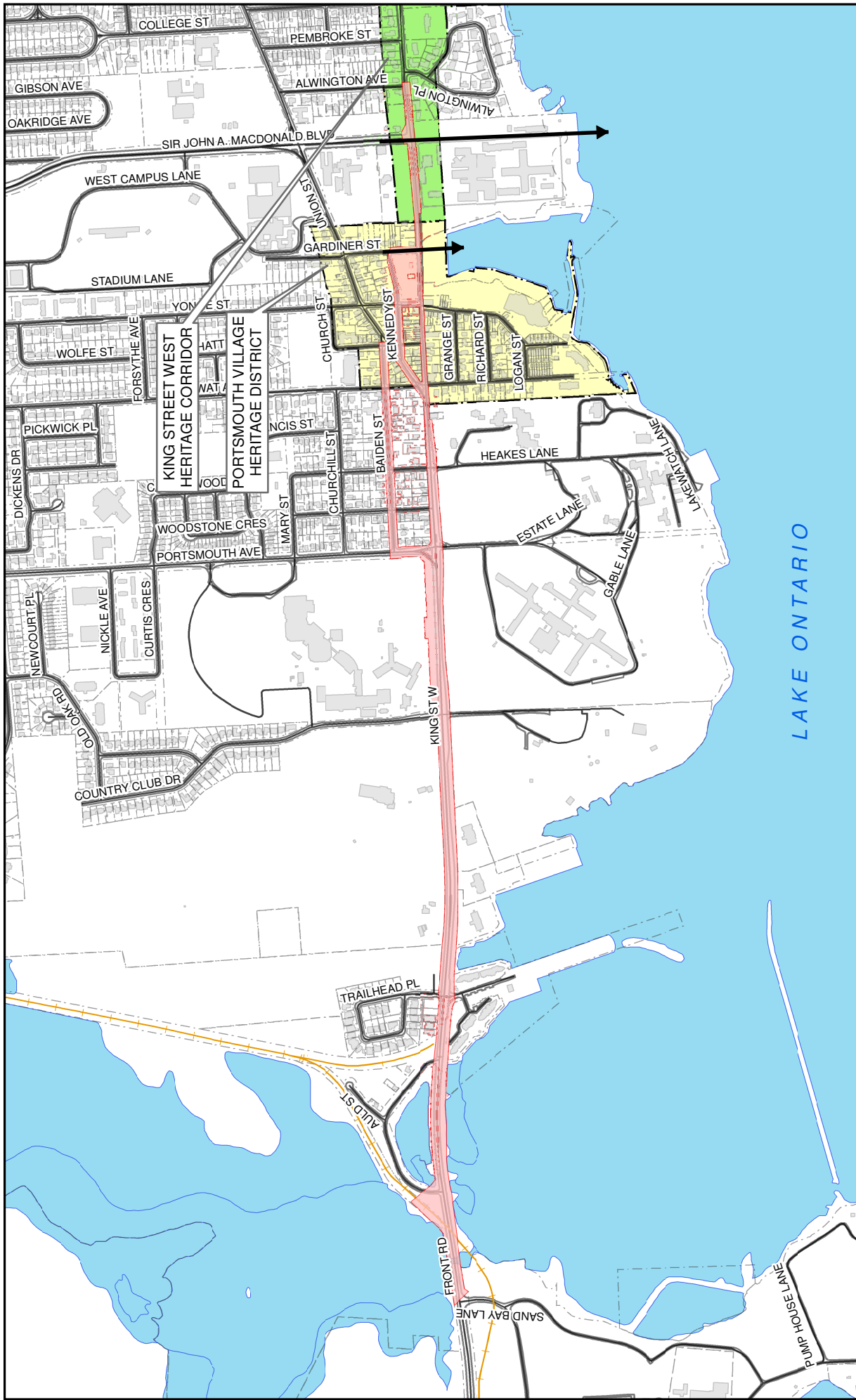
TITLE:	KEY MAP
DATE:	APRIL, 2014
PROJECT:	131-18048-00
SCALE:	1:125,000
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Portsmouth PS Flow Direction & Front Rd Trunk
Watermain Interconnection: City of Kingston, Ontario

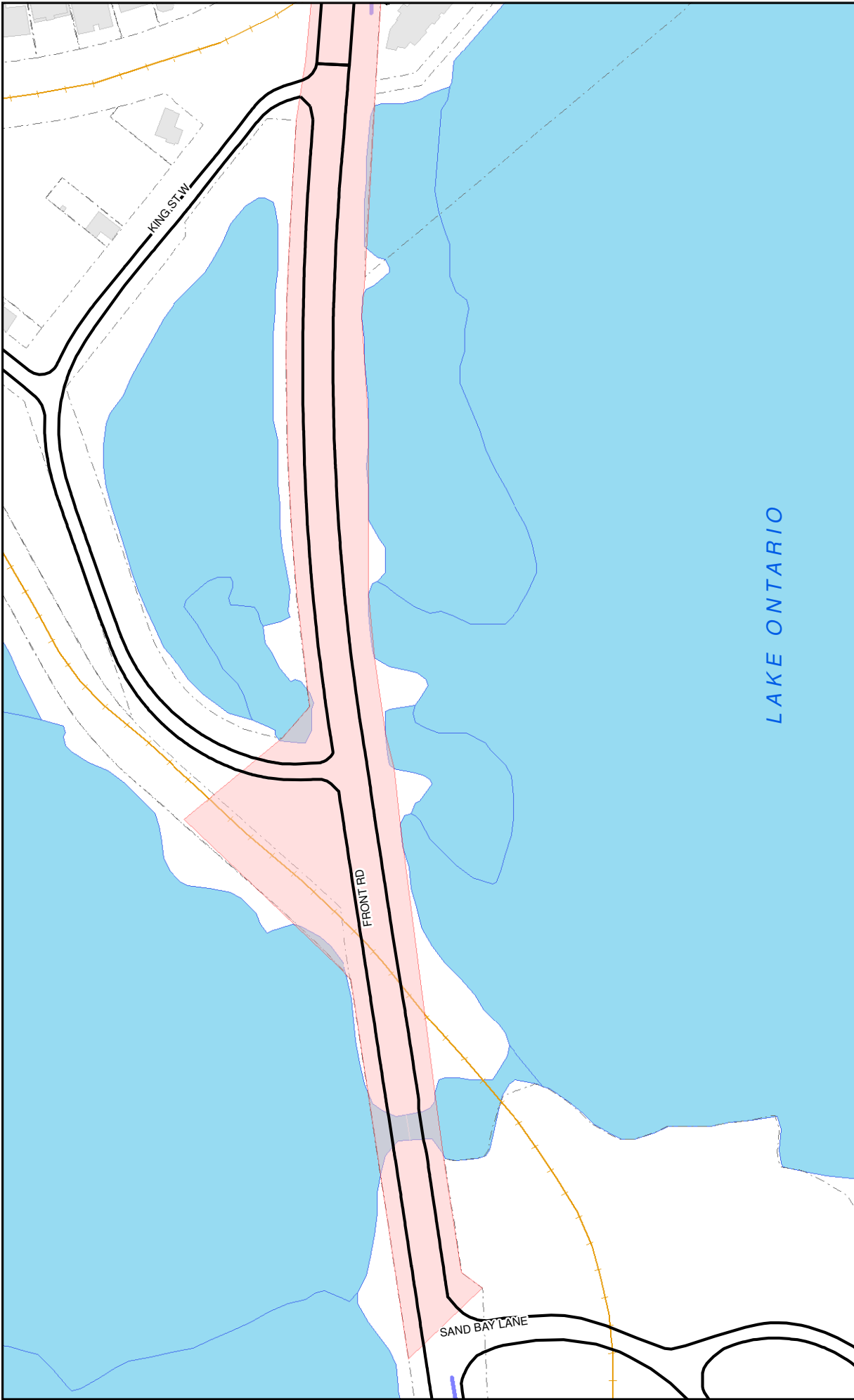
WSP
1224 GARDINERS RD, SUITE 201
KINGSTON, ONTARIO,
CANADA, K7P 0G2
WWW.WSPGROUP.COM

Utilities
Kingston
UTILITIES KINGSTON
P.O. BOX 790,
KINGSTON, ONTARIO,
K7L 4X7

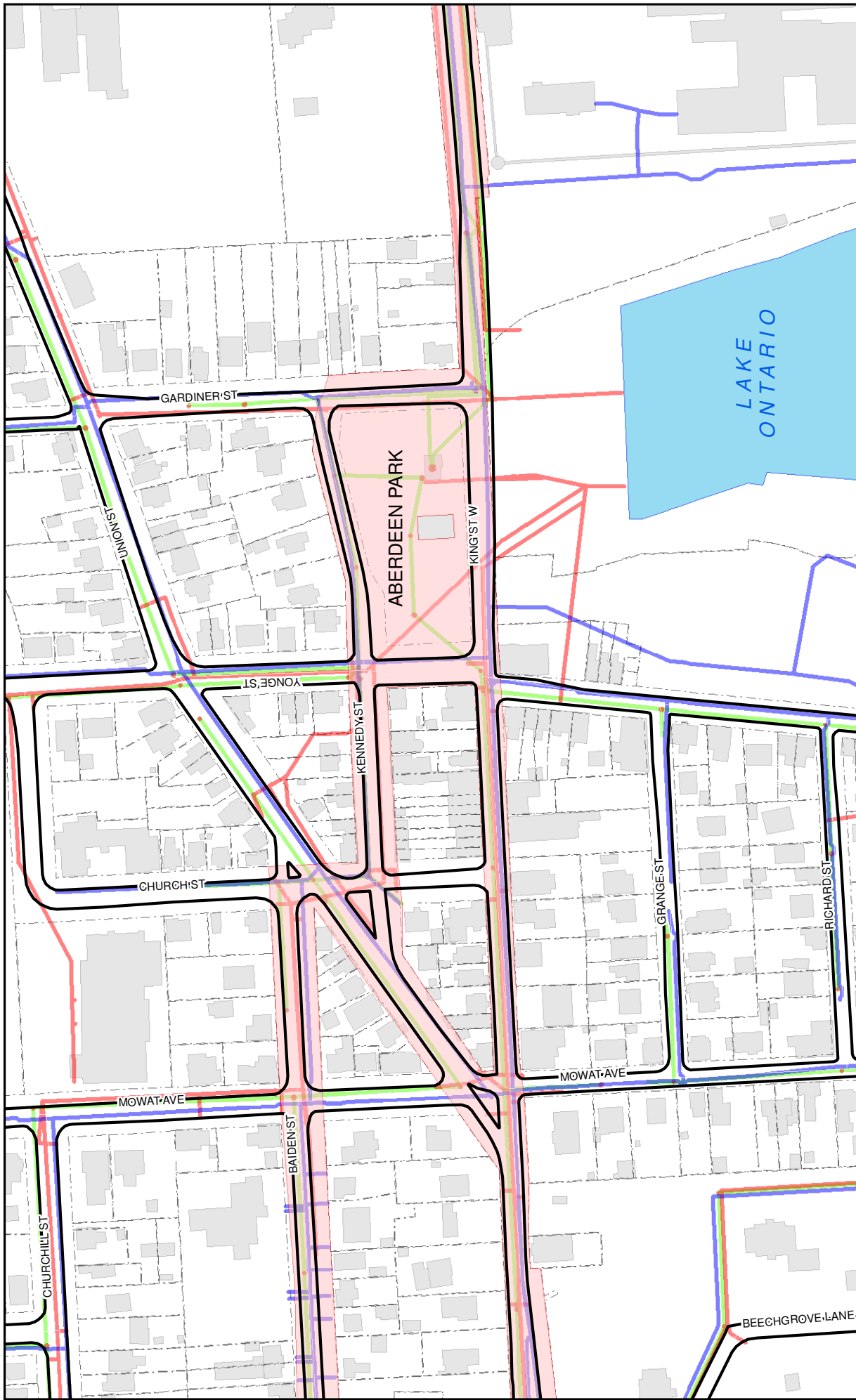
MAP **2**



<p>Legend</p> <ul style="list-style-type: none"> Study Area Heritage Area Heritage Corridor Protected Views 	<p>TITLE: STUDY EXTENTS</p> <p>DATE: APRIL, 2014</p> <p>PROJECT: 131-18048-00</p> <p>SCALE: 1:13,000</p> <p>0 100 200 400 Meters</p>	
	<p>Portsmouth PS Flow Direction & Front Rd Trunk Watermain Interconnection: City of Kingston, Ontario</p>	
<p>WSP</p> <p>1224 GARDINERS RD. SUITE 201 KINGSTON, ONTARIO, CANADA, K7P 0G2 WWW.WSPGROUP.COM</p>		<p>Utilities Kingston</p> <p>UTILITIES KINGSTON P.O. BOX 790, KINGSTON, ONTARIO, K7L 4K7</p>
<p>MAP 3</p>		



<p>Legend</p> <ul style="list-style-type: none"> Study Area Water Storm Sanitary 	<p>TITLE: CATARAQUI CREEK CROSSING</p>	<p>MAP 4</p>
	<p>DATE: SEPTEMBER, 2013</p> <p>PROJECT: 131-18048-00</p> <p>SCALE: 1:2,500</p> <p>0 20 40 80 Meters</p>	
<p>Portsmouth PS Flow Direction & Front Rd Trunk Watermain Interconnection: City of Kingston, Ontario</p>		<p>Utilities Kingston</p> <p>UTILITIES KINGSTON P.O. BOX 790, KINGSTON, ONTARIO, K7L 4X7</p>
<p>WSP</p> <p>1224 GARDINERS RD. SUITE 201 KINGSTON, ONTARIO, CANADA, K7P 0G2 WWW.WSPGROUP.COM</p>		



<p>Legend</p> <ul style="list-style-type: none"> Study Area Water Storm Sanitary 		<p>TITLE: ABERDEEN PARK AREA</p> <p>DATE: APRIL, 2014</p> <p>PROJECT: 131-18048-00</p> <p>SCALE: 1:2,500</p> <p>0 20 40 80 Meters</p>	<p>Portsmouth PS Flow Direction & Front Rd Trunk Watermain Interconnection: City of Kingston, Ontario</p>	<p>MAP 5</p>
	<p>WSP</p> <p>1224 GARDINERS RD, SUITE 201 KINGSTON, ONTARIO, CANADA, K7P 0G2 WWW.WSPGROUP.COM</p>	<p>Utilities Kingston</p> <p>UTILITIES KINGSTON P.O. BOX 790, KINGSTON, ONTARIO, K7L 4X7</p>		

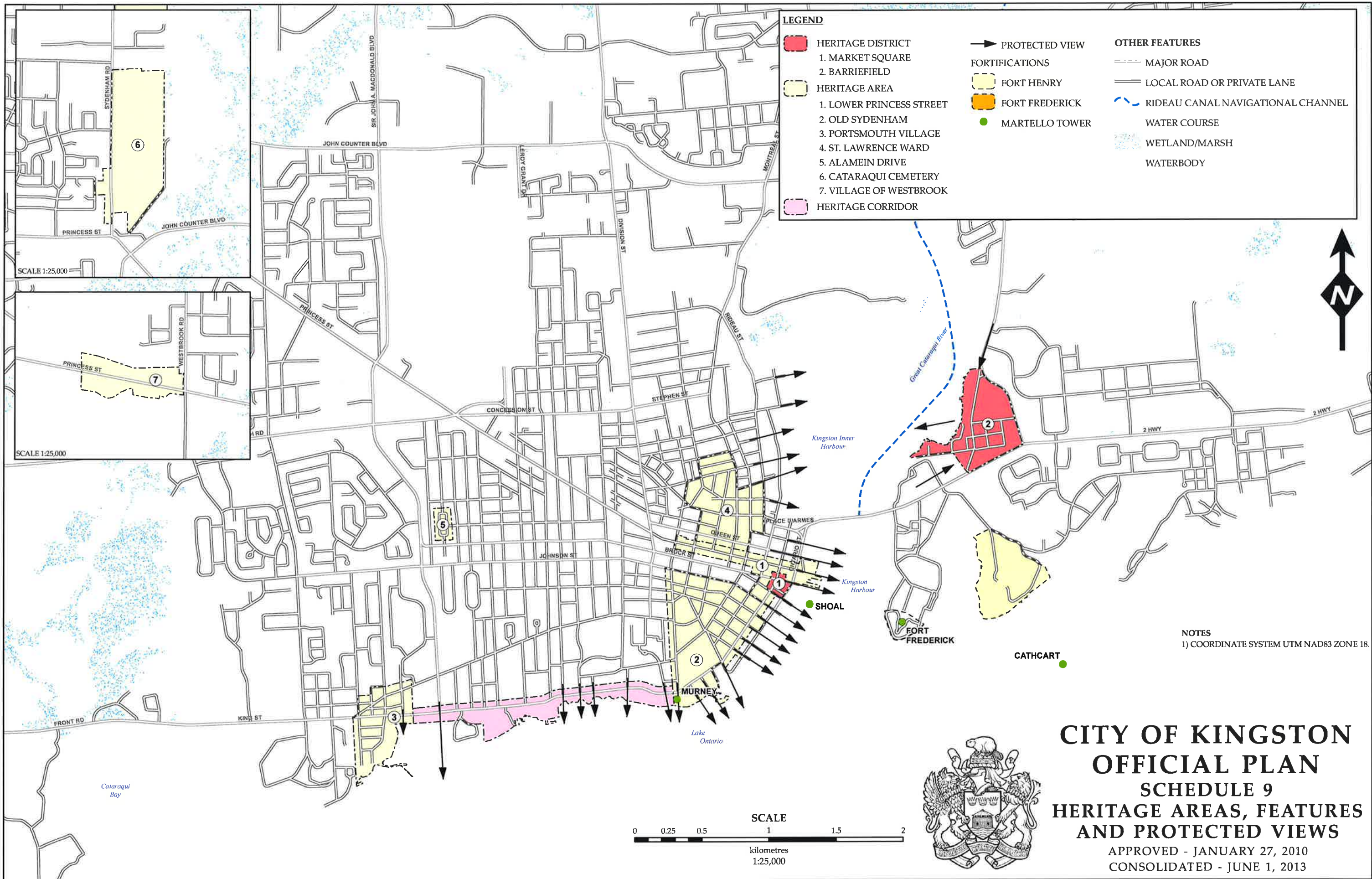
8 APPENDICES

- Appendix A: City of Kingston Official Plan – Schedule 9
- Appendix B: Screening for Impacts to Built Heritage and Cultural Heritage Landscapes
- Appendix C: Archaeological Report Acceptance Letter
- Appendix D: Approach for Addressing Vibration Impact on Heritage Buildings
- Appendix E: City of Kingston Policy on Masonry Restoration in Heritage Buildings



A

CITY OF KINGSTON
OFFICIAL PLAN –
SCHEDULE 9



**CITY OF KINGSTON
 OFFICIAL PLAN
 SCHEDULE 9
 HERITAGE AREAS, FEATURES
 AND PROTECTED VIEWS**

APPROVED - JANUARY 27, 2010
 CONSOLIDATED - JUNE 1, 2013



B

SCREENING FOR
IMPACTS TO BUILT
HERITAGE AND
CULTURAL
HERITAGE
LANDSCAPES

Screening for Impacts to Built Heritage and Cultural Heritage Landscapes

This checklist is intended to help proponents determine whether their project could affect known or potential cultural heritage resources. The completed checklist should be returned to the appropriate Heritage Planner or Heritage Advisor at the Ministry of Tourism and Culture.

Step 1 – Screening for Recognized Cultural Heritage Value

YES	NO	Unknown	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. Is the subject property designated or adjacent* to a property designated under the <i>Ontario Heritage Act</i> ?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. Is the subject property listed on the municipal heritage register or a provincial register/list? (e.g. Ontario Heritage Bridge List)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Is the subject property within or adjacent to a Heritage Conservation District?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. Does the subject property have an Ontario Heritage Trust easement or is it adjacent to such a property?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. Is there a provincial or federal plaque on or near the subject property?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Is the subject property a National Historic Site?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Is the subject property recognized or valued by an Aboriginal community?

Step 2 – Screening Potential Resources

YES	NO	Unknown	
			Built heritage resources
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. Does the subject property or an adjacent property contain any buildings or structures over forty years old[†] that are:
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Residential structures (e.g. house, apartment building, shanty or trap line shelter)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	▪ Farm buildings (e.g. barns, outbuildings, silos, windmills)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	▪ Industrial, commercial or institutional buildings (e.g. a factory, school, etc.)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	▪ Engineering works (e.g. bridges, water or communications towers, roads, water/sewer systems, dams, earthworks, etc.)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Monuments or Landmark Features (e.g. cairns, statues, obelisks, fountains, reflecting pools, retaining walls, boundary or claim markers, etc.)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. Is the subject property or an adjacent property associated with a known architect or builder?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Is the subject property or an adjacent property associated with a person or event of historic interest?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. When the municipal heritage planner was contacted regarding potential cultural heritage value of the subject property, did they express interest or concern?
			Cultural heritage landscapes
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Does the subject property contain landscape features such as:
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	▪ Burial sites and/or cemeteries
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Parks or gardens
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Quarries, mining, industrial or farming operations
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Canals
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Prominent natural features that could have special value to people (such as waterfalls, rocky outcrops, large specimen trees, caves, etc.)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	▪ Evidence of other human-made alterations to the natural landscape (such as trails, boundary or way-finding markers, mounds, earthworks, cultivation, non-native species, etc.)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Is the subject property within a Canadian Heritage River watershed?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Is the subject property near the Rideau Canal Corridor UNESCO World Heritage Site?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. Is there any evidence from documentary sources (e.g., local histories, a local recognition program, research studies, previous heritage impact assessment reports, etc.) or local knowledge or Aboriginal oral history, associating the subject property/ area with historic events, activities or persons?

Note:

If the answer is "yes" to any question in Step 1, proceed to Step 3.

The following resources can assist in answering questions in Step 1:

Municipal Clerk or Planning Department – Information on properties designated under the Ontario Heritage Act (individual properties or Heritage Conservation Districts) and properties listed on a Municipal Heritage register.

Ontario Heritage Trust – Contact the OHT directly regarding easement properties. A list of OHT plaques can be found on the website: [Ontario Heritage Trust](#)

Parks Canada – A list of National Historic Sites can be found on the website: [Parks Canada](#)

Ministry of Tourism and Culture – The Ontario Heritage Properties Database includes close to 8000 identified heritage properties. Note while this database is a valuable resource, it has not been updated since 2005, and therefore is not comprehensive or exhaustive. [Ontario Heritage Properties Database](#)

Local or Provincial archives

Local heritage organizations, such as the municipal heritage committee, historical society, local branch of the Architectural Conservancy of Ontario, etc.

Consideration should also be given to obtaining oral evidence of CHR. For example, in many Aboriginal communities, an important means of maintaining knowledge of cultural heritage resources is through oral tradition.

If the answer is "yes" to any question in Step 2, an evaluation of cultural heritage value is required. If cultural heritage resources are identified, proceed to Step 3.

If the answer to any question in Step 1 or to questions 2-4, 6-8 in Step 2, is “unknown”, further research is required.

If the answer is "yes" to any of the questions in Step 3, a heritage impact assessment is required.

If uncertainty exists at any point, the services of a qualified person should be retained to assist in completing this checklist. All cultural heritage evaluation reports and heritage impact assessment reports must be prepared by a qualified person. Qualified persons means individuals (professional engineers, architects, archaeologists, etc.) having relevant, recent experience in the identification and conservation of cultural heritage resources. Appropriate evaluation involves gathering and recording information about the property sufficient to understand and substantiate its heritage value; determining cultural heritage value or interest based on the advice of qualified persons and with appropriate community input. If the property meets the criteria in Ontario Regulation 9/06 under the Ontario Heritage Act, it is a cultural heritage resource.

† The 40 year old threshold is an indicator of potential when conducting a preliminary survey for identification of cultural heritage resources. While the presence of a built feature that is 40 or more years old does not automatically signify cultural heritage value, it does make it more likely that the property could have cultural heritage value or interest. Similarly, if all the built features on a property are less than 40 years old, this does not automatically mean the property has no cultural heritage value. Note that age is not a criterion for designation under the *Ontario Heritage Act*.

Step 3 – Screening for Potential Impacts

YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Will the proposed undertaking/project involve or result in any of the following potential impacts to the subject property or an adjacent* property?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Destruction, removal or relocation of any, or part of any, heritage attribute or feature.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Alteration (which means a change in any manner and includes restoration, renovation, repair or disturbance).
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Shadows created that alter the appearance of a heritage attribute or change the exposure or visibility of a natural feature or plantings, such as a garden.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Isolation of a heritage attribute from its surrounding environment, context or a significant relationship.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Direct or indirect obstruction of significant views or vistas from, within, or to a built or natural heritage feature.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Soil disturbance such as a change in grade, or an alteration of the drainage pattern, or excavation, etc.

* For the purposes of evaluating potential impacts of development and site alteration “adjacent” means: contiguous properties as well as properties that are separated from a heritage property by narrow strip of land used as a public or private road, highway, street, lane, trail, right-of way, walkway, green space, park, and/or easement or as otherwise defined in the municipal official plan.



C

ARCHAEOLOGICAL REPORT ACCEPTANCE LETTER

Ministry of Tourism, Culture and Sport

Culture Programs Unit
Programs and Services Branch
Culture Division
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel.: (807) 475-1628
Email: Paige.Campbell@ontario.ca

Ministère du Tourisme, de la Culture et du Sport

Unité des programmes culturels
Direction des programmes et des services
Division de culture
401, rue Bay, bureau 1700
Toronto ON M7A 0A7
Tél. : (807) 475-1628
Email: Paige.Campbell@ontario.ca



Apr 22, 2014

Douglas Yahn (P365)
Genivar Inc. - Thunder Bay

RE: Review and Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, "Stage 1-2 Archaeological Assessment Portsmouth Pumping Flow Direction and Front Road Trunk Watermain Interconnection Extends from 455 Front Road to 560 King Street West, City of Kingston, Geographic Township of Kingston and the County of Frontenac in the Province of Ontario ", Dated Mar 13, 2014, Filed with MTCS Toronto Office on Apr 3, 2014, MTCS Project Information Form Number P365-0013-2013, MTCS File Number 0000680

Dear Mr. Yahn:

This office has reviewed the above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18.¹ This review has been carried out in order to determine whether the licensed professional consultant archaeologist has met the terms and conditions of their licence, that the licensee assessed the property and documented archaeological resources using a process that accords with the 2011 Standards and Guidelines for Consultant Archaeologists set by the ministry, and that the archaeological fieldwork and report recommendations are consistent with the conservation, protection and preservation of the cultural heritage of Ontario.

The report documents the assessment of the study area as depicted in Figures 2, 3 and 4 of the above titled report and recommends the following:

1) The archaeological potential has been removed in the area of the undertaking (road ROW, Aberdeen Park and area east of the Cataraqui Bridge). No further archaeological assessments are recommended.

Based on the information contained in the report, the ministry is satisfied that the fieldwork and reporting for the archaeological assessment are consistent with the ministry's 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licences. This report has been entered into the Ontario Public Register of Archaeological Reports. Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,
Paige Campbell
Archaeology Review Officer

cc. Archaeology Licensing Officer
Katie Morrow, Utilities Kingston
David Fegan, Utilities Kingston (City of Kingston)

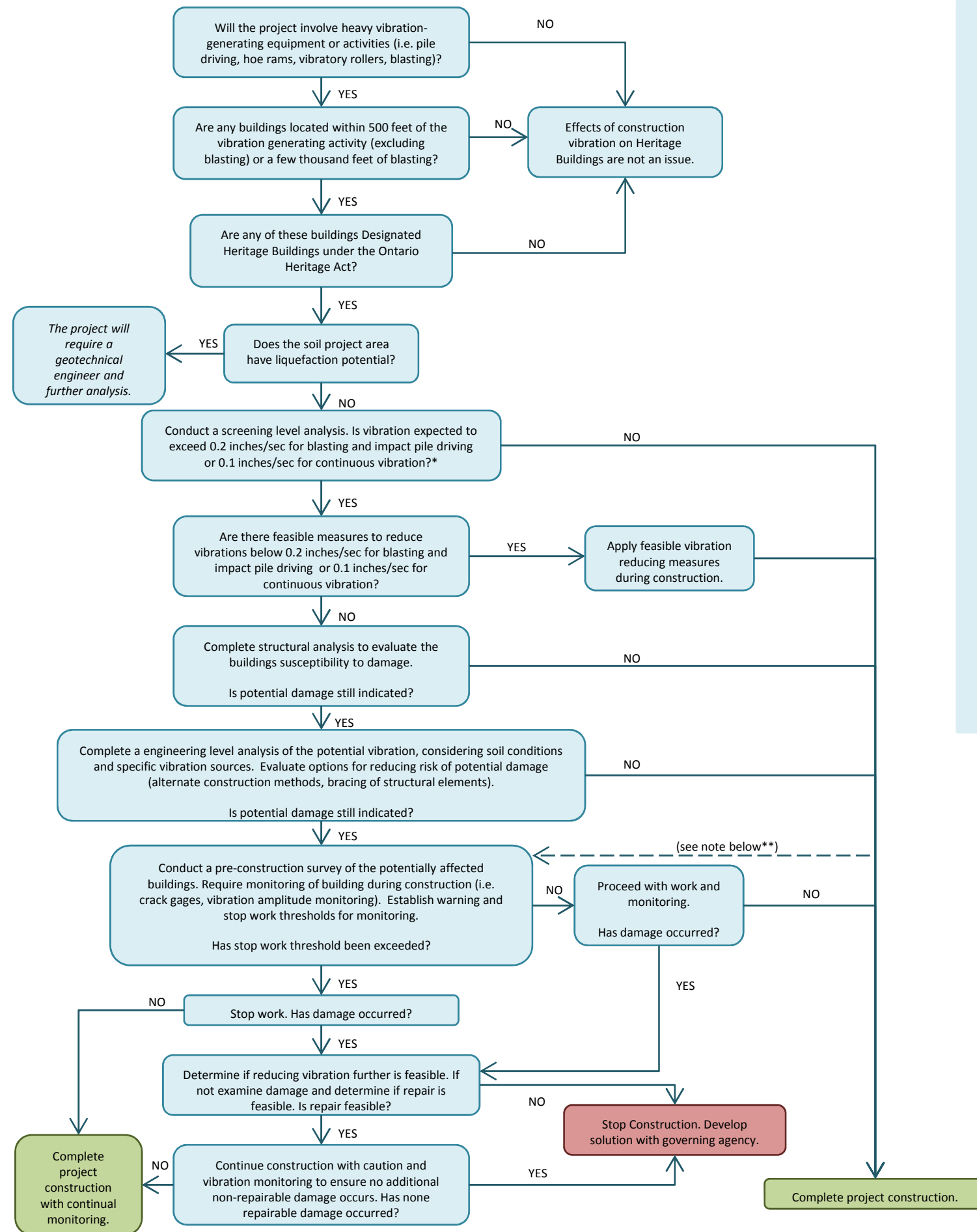
¹In no way will the ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.



D

APPROACH FOR ADDRESSING VIBRATION IMPACT ON HERITAGE BUILDINGS

Approach for Addressing Vibration Impact on Heritage Buildings



Typical Vibration Amplitudes and Thresholds

Response	Vibration Amplitude	Typical Vibration Source (25 ft from source)
	1.00	← Impact Pile Driving
	0.80	← Vibratory Pile Driving
Damage threshold for modern buildings	→ 0.30	← Freight Train
Definitely annoying (Continuous Vibration)	→ 0.20	← Vibratory Roller
	→ 0.16	← Commuter Train
Damage threshold for older masonry monuments	→ 0.12	
	→ 0.10	← Hoe Ram
	→ 0.08	
Damage threshold for ancient ruins and monuments	→ 0.05	← Bus or truck driving over bump
Distinctly perceptible (continuous vibration)	→ 0.035	← Jackhammer
	→ 0.01	
Approximate threshold of perception	→ 0.005	← Bus or truck on a typical street

*Note: City of Toronto (2008) recommends a vibration limit of 0.3 to 1.0 inches/sec for avoiding damage to heritage buildings.

**Note: Conducting a pre-construction survey and to conduct monitoring may be desirable even if damage is unlikely.

Information adapted from: Current Practices to address construction vibration and potential effects to historic building adjacent to transportation projects prepared by Wilson, Ihrig & Associates, Inc., ICF International, and Simpson, Gumpertz & Heger, Inc. September 2012.



E

CITY OF KINGSTON
POLICY ON
MASONRY
RESTORATION IN
HERITAGE
BUILDINGS

CITY OF KINGSTON
Policies and Procedures



Policy on Masonry Restoration in Heritage Buildings

Effective Apr. 2013
Revision Date N/A
Revision No. N/A
Page No. 1 of 7

1.0 PURPOSE

This policy is intended to guide the restoration of masonry in both public and private heritage buildings in the City. This policy would provide for guidance in reviewing applications for alteration under the Ontario Heritage Act and also in providing advice to landowners who need assistance in dealing with masonry maintenance issues.

2.0 REVISION HISTORY

This is an update to the Council-approved “2003 Guidelines for the Conservation of Historic Masonry”.

3.0 APPLICATION

The City of Kingston is well known for its built heritage, especially historic buildings constructed in local limestone and, to a lesser extent, clay brick. This historic masonry requires maintenance that is quite different than what is normally required for modern masonry. The intent of this policy is to describe common repair requirements and to provide best practices to complete these repairs on both public and private properties.

There are many masonry conservation issues that are beyond the scope of this discussion. Historic practices such as lime based stuccoes or renders over wood lath or masonry, were common and require special care.

4.0 GENERAL PROVISIONS

Masonry commonly deteriorates when exposed to severe weather and generally, this deterioration is focused in the masonry joints surrounding the stone or brick units. Other

influences, such as faulty eavestroughs or downspouts, or the lack thereof, can accelerate deterioration by focusing leaking water or roof run-off to areas of the masonry, resulting in freeze-thaw damage and bulging due to frost heave when this saturation is excessive and ongoing. Differential structural settlement and cyclic frost heave can result in staggered cracks through the mortar joints and, cracking in the joints and stone units can also develop as a result of thermally induced movements. As a first step in considering a repair program, it is therefore necessary to understand the causes of deterioration, and an effective repair program may need to not only be directed to the repair of the masonry, but more importantly, address the source of the deterioration.

4.1 Re-pointing

Typically, the most commonly required repair work undertaken on historic masonry is called pointing. This relates to the mortar surrounding the stones or bricks (the masonry units), its deterioration (cracked, flaking, or missing) and the ability of the joint to seal the masonry against water penetration, and support the stone or brick units. It is rarely necessary that an entire wall or building requires pointing all at one time. This is also sometimes difficult to do since the interfaces between existing and new mortar are often compromised by the pointing work and, as a result, lead to a shortened service life for this interface area.

The process involves removing the old mortar, usually to a depth of twice the width of the mortar joint, or more, until sound mortar is reached and then filling the joint with new mortar. Where the joints are less than 15 mm in width, the minimum depth of removal should be 25 mm to ensure that there will be adequate re-pointing mortar depth.

In some cases, deterioration of the back-up masonry may be to the point where the mortar encountered during removal is of sand-like consistency and may in fact be missing. When this is encountered, or when masonry units are found to be loose or displaced, the services of a structural engineer or conservation specialist experienced in this kind of work should be obtained to determine if a greater intervention is required and whether or not structural stability is an issue.

To minimize the risk of damage to the masonry units (bricks or stones) the process of “cutting out” should only be done with either hand tools or pneumatic tools that are made and sized for the task. The joint should then be cleaned of dust and other loose material, then thoroughly wetted (but not to the point that standing water is present) before the new mortar is placed. Tools such as rotary saws or any type of power grinder or wheel should not be used for cutting out because of the risk of irreversibly damaging the masonry units unless the tool is shown to be designed for the task.

It should be noted that ashlar, defined as accurately squared stone blocks laid in even courses and fitted with joints that are usually under 3mm. (1/8”) in width, require great skill to repair and pose special problems when fastening railings or signs, for example.

4.2 Recommended Mortar

The most appropriate mortar for historic masonry, which typically used lime-based mortars for the original construction, is one which includes lime and white non-staining Portland cement constituents. This is different from Portland cement mortars normally used in modern construction.

The intent is to use a mortar that is slightly softer and more porous than the masonry unit itself – as such the mortar becomes the vulnerable part of the matrix and will break before the masonry unit. Other advantages to mortars containing lime include a tolerance of slight movement and ability to self-heal. Portland cement based mortars should not be used exclusively because they are hard and inclined to more readily crack due to settlement and thermal induced movements. White Portland cement is used because the more common grey Portland cement contains soluble salts that can result in efflorescence (chalky salt deposits) and possible damage to the masonry due to the salt formation, which is prone to expand. For typical walling constructed of Kingston limestone, the mortar mix is usually 1 part white Portland cement, 1 part lime putty or hydrated lime and, 6 parts aggregate (sand), which is referred to as a 1:1:6 mix. Depending on the application, the mix must be adjusted to suit the masonry material and/or exposure, for instance, for old clay brick the lime content is usually increased to a 1:2:9 ratio.

Where the masonry has high exposure to the weather, air entrainment (infusion) of the mortar is an important factor in improving the resistance to deterioration. An air content of 15% to 17% is recommended. For more details on selecting an appropriate mortar for your masonry type and exposure conditions, reference should be made to CSA Standard A179.

4.3 Recommended Mortar Profile

The profile of the joint should not necessarily replicate the existing profile. Raised profiles, back struck and plastered joints can in fact lead to early deterioration of the mortar and should be avoided. Generally, a re-pointed joint should be slightly recessed back from the arrises (edges) of the masonry units. After the initial set, the mortar should be compacted by use of a dowel or short stout bristle brush, with the latter also producing a textured finish by exposing the aggregate. Excess mortar should be kept off the face of the brick or stone to avoid staining.

4.4 Recommended Aggregate

The selection of the right aggregate is also critical to the long-term performance of the mortar and colour of the joint. The aggregate should be a clean, sharp sand with a full range of particle size from fines to 3 mm. (1/8") in size, unlike the uniform fine sand commonly sold as brick sand (the proper gradation of sand to be used is provided in CSA Standard A179). Sources of sand should also be from quarries that are certified to not have alkali reactive aggregates.

It is also important to record the mortar mix used and note the source of the aggregate to ensure an easy match for future work.

4.5 Recommended Method of Colour Matching Masonry

The desired colour of the mortar should be achieved through the colour of the selected sand. However, pigments can be used to obtain the desired colour, but these can often result in short and/or long term mottling/splotchiness of the colour, so it is recommended that these be well tested before they are used extensively.

4.6 Curing New Masonry

It is important to properly cure the mortar to achieve the desired strength. This is achieved by misting the mortar and protecting it from wind and sun to avoid premature drying and resultant shrinking and cracking. The use of wet burlap and white plastic coverings is recommended. The mortar should be placed about one month before the risk of freezing.

4.7 Recommended Method of Cleaning Masonry

Historic masonry rarely requires cleaning to help stop decay. Patinas of age, formed as a result of exposure to the elements, are what make historic buildings look historic. Indeed some cleaning processes, such as that commonly referred to as “sand blasting”, can irreversibly damage historic masonry. When cleaning is required, to remove graffiti, paint or rust stains for example, the most gentle and environmentally friendly means possible should be identified by first testing in a discreet area. There are a variety of substances that can be ‘blasted’. Chopped corn husks, for instance, are less abrasive than sand. Sand should never be used on brick units as it can remove the protective fire hardened surface which will lead to a total deterioration of the whole brick.

4.8 Recommended Method of Attaching Items to Masonry

When it is necessary to fasten items such as signs, railings, etc., to masonry, care must be exercised. To avoid irreversible damage to the brick or stone the fasteners should typically be located in the masonry joint and not in the masonry unit itself. Ferrous metal, especially mild steel, can corrode and stain and exert enough force to cause masonry to split. It is recommended, therefore, that fasteners are best made from non-corroding stainless steel set in either lead or nylon expansion anchors.

4.9 Recommended Approach when Stones are Cracked

Kingston limestone will often crack vertically perpendicular across the bedding planes. When these cracks are few in number and only a hair wide, they typically pose no risk. However, if the symptoms are beyond that, then a specialist with experience in historic masonry should be consulted. To keep water out, fine cracks under 3 mm. (1/8”) across can be filled with a lime paste or injected with hydraulic lime; if wider, mortar and/or an

appropriate sealant can be used and then monitored over future months for movement. If the stone is shattered it may have to be removed and replaced. If it is a significant stone with limited cracking, it may be possible to remove it, repair it, and to reinstall it. Under no circumstances should the cracks be enlarged by grinding and buttered over with epoxy.

6.0 IMPLEMENTATION

6.1 Advisory Assistance

In the Kingston area there are consultants, architects, engineers and trades people who have extensive experience conserving historic masonry. Staff can assist landowners with finding someone who can assist with the masonry restoration.

7.0 REGULATORY REQUIREMENTS

Consulting with the City's Heritage and Urban Design Division of the Planning and Development Department is required before proceeding with any work on a structure that is designated under the *Ontario Heritage Act*. Extensive restoration will need to be approved by the Municipal Heritage Committee. To confirm if a property is designated under the *Ontario Heritage Act*, the Heritage & Urban Design Division can be contacted at 613-546-4291 x1844 or at heritage@cityofkingston.ca.

For more information visit the Ontario Ministry of Tourism, Culture and Sport web site at www.culture.gov.on.ca or Parks Canada's Standards and Guidelines for the Conservation of Historic Places in Canada publication at www.historicplaces.ca

8.0 REVIEW PERIOD

This policy shall be reviewed when changes to the CSA standard are revised, or if either staff or the Municipal Heritage Committee deem it necessary to update the policy.