Portsmouth Pumping Station Flow Direction
&
Front Road Trunk Watermain Interconnection

Natural Environment Assessment

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1. Introduction

WSP Canada Inc. (formerly GENIVAR Inc.) was retained by Utilities Kingston, herein referred to as the Proponent, to conduct a Municipal Class Environmental Study (MCEA) for the Portsmouth Pumping Station Flow Direction and Front Road Trunk Watermain Interconnection.

As part of the City of Kingston's (City) Urban Growth strategy, services including sewer infrastructure require further evaluation and upgrading to service new development within the City of Kingston. The Proponent is undertaking the current study to evaluate the option of redirecting flow at the Portsmouth Pumping Station to the west, in order to help alleviate any potential system constraints in the eastern portion of the City's sewer network. A forcemain connection may be necessary along Front Road, between Sandy Bay Lane and Sir John A MacDonald Boulevard. Three (3) alternatives have been proposed (Section 7.0, Appendix A) to connect the Front Road forcemain.

This report documents the natural environment in a Natural Environment Assessment (NEA) report and includes existing conditions of the Study Area (Figure 2, 3), assessment of alternatives and general environmental protection measures to be incorporated into the Detailed-Design portion of this study. For the purpose of this report, *Study Area* refers to the area identified in both Figure 2 and 3, occurring within part Lots 13 through 20, Concession 1 and part Lots 13 through 20, Broken Front, City of Kingston.

2. Study Purpose and Environmental Context

This project is being conducted under the MCEA process. Generally, the process consists of:

- Identification of a problem or opportunity;
- Development of a set of alternative solutions or methods with respect to land-use planning objectives;
- Assessment of the existing conditions with respect to, natural, social, cultural and economic environments, in addition to First Nation/Aboriginal People and other considerations;
- Assessment of potential impacts; and
- Development of environmental protection and mitigation measures.

The purpose of the NEA is to assess alternatives with respect to existing Natural Heritage Features, identify potential impacts, and outline preliminary mitigation measures.

Provincial and municipal regulations have been established to govern potential impact to Natural Heritage Features (NHF) or features and areas which possess important "environmental and social values as a legacy of the natural landscape of an area" (OMNR 2000a).

NHF, as defined in the Ontario Ministry of Municipal Affairs and Housing (OMMAH) Provincial Policy Statement below, are comprised of a broad range of biophysical elements for which significant contributions to and links within natural ecosystems have been demonstrated (OMMAH 2005). The PPS development within specific NHF areas is prohibited.

The purpose of the NEA is to identify, survey, and evaluate a reasonable range of options in order to carry out the proposed interconnection. A preliminary natural environmental assessment is carried out to identify the anticipated positive and negative outcomes of each alternative, allowing identification of the alternative likely to have the least impact on the existing environment.

2.1 Provincial Policy Statement

The Provincial Policy Statement (PPS) is a planning document that governs and provides a framework for development and/or site alteration within the province of Ontario. In order to preserve various ecological resources deemed significant in the province, development lands must be assessed for the presence of

Natural Heritage Features prior to construction. These NHF are both defined and afforded protection under the PPS. Linkages between NHF, Surface Water and Groundwater Features are also recognized and afforded similar protection under the policy. Section 2.1 of the PPS also requires that the diversity and connectivity of all NHF and the long-term ecological function of NHF be maintained, restored or improved where possible.

Under the PPS, development and site alteration is prohibited within significant NHF significant habitat of endangered or threatened species, or within any fish habitat, but may be permitted within 120 m of these features pending the completion of an Environmental Impact Study (EIS). Further, "development or site alteration is prohibited within, on or adjacent to defined feature areas unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions" (OMMHA 2005).

Natural Heritage Features as defined by the PPS (OMMHA 2005) include:

A) *Significant habitat of endangered or threatened species*
B) *Fish habitat*
C) *Significant Areas of Natural and Scientific Interest (ANSI)*
D) *Significant wildlife habitat*
E) *Significant wetlands*
F) *Significant valleylands (south and east of the Canadian Shield)*
G) *Significant woodlands (south and east of the Canadian Shield)*

2.2 Regional Official Plans

The City of Kingston's Official Plan (OP) is a set of policies used to help guide economic, environmental and community-building decisions affecting the use of land (City of Kingston 2010). The OP was reviewed for NHF's located within and adjacent to the Study Area.

The OP identifies Environmental Protection Areas, riparian habitat, Provincially Significant Wetland, Significant Valleyland, linkage and corridor area, watercourse, waterbody, area of natural and scientific interest and sensitive species within or adjacent to the Study Area (City of Kingston 2010).

3. Information Resources

Several information resources were consulted over the course of the report preparation. References for the documents utilized are provided below.

- Bird Studies Canada. Atlas of the Breeding Birds of Ontario (2006);
- Bowfin Environmental Consulting. 2011. City of Kingston Environmental Assessment, Third Crossing of the Cataraqui River, Fisheries Results and Impact Analysis;
- City of Kingston Official Plan (2010);
- Ecological Services. 2011. Cataraqui Bay Wastewater Treatment Invista Sites;
- Government of Canada. Species at Risk Public Registry (SARA) (accessed 2013);
- Kingston Field Naturalists. 2004. Report on Little Cataraqui Creek Wetland, West Side, Front Road to Bath Road;
- Ontario Ministry of Municipal Affairs and Housing. 2005. Provincial Policy Statement;
- Ontario Ministry of Natural Resources Land Information Ontario (LIO) and Natural Heritage Information Centre (NHIC) databases (accessed 2013);
- Ontario Ministry of Natural Resources. 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement;

- Ontario Ministry of Natural Resources. 2008. Ecological Land Classification Ecosystem Catalogue update;
- Ontario Ministry of Natural Resources. 2012. General Habitat Description for the Barn Swallow (*Hirundo rustica*);
- Ontario Ministry of Natural Resources. Species at Risk in Ontario (SARO) List (accessed 2013)
- Ontario Nature. 2011. Ontario Reptile and Amphibian Atlas; and,
- The Greer Galloway Group. 2013. Kingston Bridge Rehabilitation – Collins Creek & Front Road, Species at Risk (SAR) Report.

4. Background Information

Available resources were consulted for relevant background information to guide field studies and impact assessment considerations. Background reports, online databases and consultation with regulating agencies provided a basis for information and allow WSP to design field surveys to address identified data gaps.

4.1 Regulatory Agencies

The Cataraqui Region Conservation Authority (CRCA) is responsible for reviewing and commenting on local development applications and is anticipated to be the key reviewing agency for natural environment considerations. Accordingly, planners and biologists from CRCA, in addition to the Ontario Ministry of Natural Resources (OMNR) were contacted for information with respect to the NEA and planning requirements.

The OMNR reviewed available records and provided a summary of Species at Risk and Species of Special Concern within and surrounding the Study Area. The OMNR indicates the following species have the potential to occur within 1 km of the Study Area:

- Barn Swallow (*Hirundo rustica*)
- Bobolink (*Dolichonyx oryzivorus*)
- Black Tern (*Chlidonias niger*)
- Red-headed Woodpecker (*Melanerpes erythrocephalus*)
- Snapping Turtle (*Chelydra serpentina*)
- Lake Sturgeon (*Acipenser fulvescens pop. 3*)

The following species potentially occur within 5 km of the Study Area:

- Gray Ratsnake (*Pantherophis spiloides pop. 1*)
- Milksnake (*Lampropeltis triangulum*)
- Least Bittern (*Ixobrychus exilis*)
- Peregrine Falcon (*Falco peregrinus*)

The OMNR indicated that a site assessment is required in order to identify the presence of Species at Risk and/or their habitats (Elizabeth Spang, OMNR District Planner, pers. comm. July 26, 2013).

OMNR indicated that the project areas traverse the Little Cataraqui Creek Complex PSW and provided fish community information for Little Cataraqui Creek (Section 4.4). Mitigation methods were provided and have been incorporated into general mitigation methods for proposed work (Section 8.0, Elizabeth Spang, OMNR District Planner, pers. comm. July 26, 2013).

Please refer to Appendix B for a record of agency communications.

4.2 Historical Studies

WSP reviewed various studies for information related to the Study Area and each study is detailed below.

A Species at Risk study was undertaken as part of bridge rehabilitation works, including the Front Street Bridge, located within the Study Area. Due to high water conditions, nesting birds under the bridge (e.g., Barn Swallow) was unlikely. No Species at Risk were observed during the April 2013 site investigation (The Greer Galloway Group Inc. 2013).

An ecological assessment was undertaken as part of the MCEA for the Cataraqui Bay Wastewater Treatment Plant Upgrades. An area approximately 800 m southwest of the Front Road bridge was assessed for natural heritage values. The area was determined to display anthropogenic-based disturbance. No Species at Risk were identified. White-tailed Deer (*Odocoileus virginianus*) likely use this area (Ecological Services 2011).

A report was completed on the Little Cataraqui Creek Wetland from Front Road to Bath Road and includes the western extent of the Study Area. The existing condition of the wetland and areas adjacent to the wetland were documented and significant species, areas, and sensitive habitats where identified. Locally Significant plants (i.e. *Carex cristatella, Carex pallescens*, and *Uvularia sessilifolia*) were identified in moist woodlands or pasture lands along the southwest corner of the wetland. Sixty-four (64) avian species were identified as breeding within the wetland, including one (1) Species at Risk (i.e. Least Bittern) and two (2) rare species (i.e. Short-eared Owl (*Asio flammeus*) and Black Tern). Nine (9) herpetofauna species were confirmed within the wetland, including two (2) Species at Risk; Northern Map Turtle (*Graptemys geographica*) and Western Chorus Frog (*Pseudacris triseriata pop. 2*). Monarch Butterfly (*Danaus plexippus*), a Special Concern species, was identified adjacent to the wetland. Potential areas for Northern Pike spawning were identified north of the Study Area (Kingston Field Naturalists 2004).

An MCEA was completed approximately 4 km northeast of the Study Area and approximately 3 km upstream (north) from the mouth of Cataraqui Creek as part of the Third Crossing of the Cataraqui River. Cataraqui Creek is a large watercourse occurring approximately 6 km east of Little Cataraqui Creek. The purpose of the MCEA study was to address impacts related to development of watercourse crossing of Cataraqui Creek. Fish habitat assessments were completed in 2010 and confirmed twenty five (25) species within the river (Section 4.4). No Species at Risk were confirmed; however Eastern Silvery Minnow (*Hybognathus regius)* is designated as Imperiled, or an S2 priority provincial rank (Bowfin Environmental Consulting 2011).

4.3 Species at Risk Database Consultation

Database consultation was undertaken to obtain data for the Study Area with regards to Species at Risk and rare species occurrence.

The Natural Heritage Information Centre (NHIC), Ontario Reptile and Amphibian Atlas (ORAA), Ontario Breeding Bird Atlas (OBBA), and Department of Fisheries and Oceans Canada's (DFO) Aquatic Species at Risk mapping were consulted to determine which species are known to occur on or within the vicinity of the subject lands.

The search results identified seventeen (17) Species at Risk and species of concern that may occur within or adjacent to the study area: twelve avian and five herpetofauna.

Avian

- Barn Swallow (*Hirundo rustica*)
- Black Tern (*Chlidonias niger*)
- Bobolink (*Dolichonyx oryzivorus*)
- Northern Bobwhite (*Colinus virginianus*)
- Chimney Swift (*Chaetura pelagic*)

- Common Nighthawk (*Chordeiles minor*)
- Eastern Meadowlark (*Sturnella magna*)
- Henslow's Sparrow (*Ammodramus henslowii*)
- Least Bittern (*Ixobrychus exilis*)
- Loggerhead Shrike (*Lanius ludovicianus)*
- Red-headed Woodpecker (*Melanerpes erythrocephalus*)
- King Rail (*Rallus elegans*)

Herpetofauna

- Snapping Turtle (Chelydra serpentina)
- Blanding's Turtle (Emydoidea blandingii)
- Western Chorus Frog (Pseudacris triseriata pop. 2)
- Eastern Milksnake (Lampropeltis triangulum)
- Eastern Hog-nosed Snake (Heterodon platirhinos)

Additionally, Lands Information Ontario (OMNR 2013) was reviewed for NHFs, such as Provincially Significant Wetlands, ANSI, fish habitat, fish and wildlife travel corridors, fish and wildlife staging areas, Significant Ecological Areas, den sites and nesting sites. NHF's are discussed in Section 6.0.

4.4 Summary

Table 1: Fish historically occurring within Little Cataraqui Creek & Cataraqui River

Common Name	Scientific Name	S-Rank[1]	SARO[2]	SARA[3]	Cataraqui Creek (OMNR[4])	Cataraqui River (Bowfin[5])
Alewife	*Alosa pseudoharengus*	SNA				✓
Banded Killifish	*Fundulus diaphanus*	S5	NAR	NAR	✓	✓
Blackchin Shiner	*Notropis heterodon*	S4	NAR	NAR		✓
Black Crappie	*Pomoxis nigromaculatus*	S4			✓	✓
Blacknose Shiner	*Notropis heterolepis*	S5				✓
Bluegill	*Lepomis macrochirus*	S5			✓	✓
Bluntnose Minnow	*Pimephales notatus*	S5	NAR	NAR		✓
Bowfin	*Amia calva*	S4				✓
Brook Silverside	*Labidesthes sicculus*	S4	NAR	NAR		✓
Brook Stickleback	*Culaea inconstans*	S5			✓	
Brown Bullhead	*Ameiurus nebulosus*	S5			✓	✓
Central Mudminnow	*Umbra limi*	S5			✓	✓
Creek Chub	*Semotilus atromaculatus*	S5			✓	
Common Carp	*Cyprinus carpio*	SNA				✓
Eastern Silvery Minnow	*Hybognathus regius*	S2	NAR	NAR		✓

Common Name	Scientific Name	S-Rank[1]	SARO[2]	SARA[3]	Cataraqui Creek (OMNR[4])	Cataraqui River (Bowfin[5])
Fathead Minnow	*Pimephales promelas*	S5			✓	
Finescale Dace	*Phoxinus neogaeus*	S5			✓	
Gizzard Shad	*Dorosoma cepedianum*	S4				✓
Golden Shiner	*Notemigonus crysoleucas*	S5			✓	✓
Johnny Darter	*Etheostoma nigrum*	S5			✓	✓
Largemouth Bass	*Micropterus salmoides*	S5			✓	✓
Longnose Gar	*Lepisosteus osseus*	S4				✓
Northern Pike	*Esox lucius*	S5			✓	✓
Northern Redbelly Dace	*Phoxinus eos*	S5			✓	
Pumpkinseed	*Lepomis gibbosus*	S5			✓	✓
Rock Bass	*Ambloplites rupestris*	S5			✓	✓
Round Goby	*Neogobius melanostomus*	SNA				✓
Smallmouth Bass	*Micropterus dolomieu*	S5			✓	
Sunfish spp.						✓
White Sucker	*Catostomus commersoni*	S5				✓
Yellow Bullhead	*Ameiurus natalis*	S4				✓
Yellow Perch	*Perca flavescens*	S5			✓	✓

[1] Protection priority Provincial Rank (NHIC 2012); 1 - Critically Imperiled, 2 - Imperiled, 3 - Vulnerable, 4 - Apparently Secure, 5 – Secure; SX-Presume Extirpated, SH – Possibly Extirpated, SNR – Unranked, SU-Unrankable, SNA – Not Applicable, S#S# -Rank Range, S#B – Breeding migrants and S#N – Non-breeding migrants;
[2] Species protected under the provincial Endangered Species Act; END – Endangered, THR – Threatened, SC – Special concern;
[3] Species protected under the federal Species at Risk Act (2007); and
Species not at Risk – NAR.
[4] Spang Elizabeth, MNR Planner, pers. comm. July 26, 2013
[5] Bowfin Environmental Consulting 2011.

5. Existing Conditions

5.1 Site Location

The Study Area is located on part Lots 13 through 20, Concession 1, and part Lots 13 through 20, Broken Front, City of Kingston (Figure 1).

Overall, the Study Area is urbanized, consisting of commercial, institutional, health services, and residential areas. Vegetation within the Study Area is primarily planted, with natural occurring vegetation limited to the wetland areas, a thin woodland northeast of Front Road bridge and the Marshlands Conservation Area (Figure 2). As per the City's land use designations, the Study Area is comprised of environmental protection, institutional and residential areas.

5.2 Site Visits

WSP conducted site investigations throughout the spring and summer to document existing conditions with respect to three (3) alternative routes (Section 7.0, Appendix A). Investigations included identification of areas of significance, such as permanent or ephemeral water features, springs, seeps, Species at Risk and rare habitat, landscape connectivity, and potential impacts related to proposed development. The addition of Option 3 – Baiden Street, was later added and a single site investigation was carried out in January 2014. Due to snow-covered conditions, the investigation consisted of survey of visible vegetation and incidental contact with fauna.

A total of seven (7) site visits were undertaken, focusing on various aspects of the Study Area and included:

- Anuran Surveys (June 20 and July 4, 2013);
- Breeding Bird Surveys (June 21, July 5, and July 30, 2013);
- Vegetation Survey & Ecological Land Classification (June 21, July 5, July 30,and August 23, 2013);
- Aquatic Assessments (June 21, July 5, and July 30, 2013); and,
- Assessment of Option 1 (January 16, 2014).

Table 2: Details for Site Visit

Date	Time / Duration	Weather Conditions	Investigator(s)*
June 20, 2013	8:30 pm to 10:45 pm	Clear skies, ± 15°C, gentle breeze, no precipitation	JR
June 21, 2013	5:00 am to 2:00 pm	Sunny with few clouds, ± 19°C, gentle breeze, no trace of precipitation	JR
July 4, 2013	8:30 pm to 10:45 pm	Scattered clouds, ± 20°C, gentle breeze, no trace of precipitation	AR
July 5, 2013	5:00 am to 2:00 pm	Sunny with few clouds, ± 22°C, gentle breeze, no trace of precipitation	AR
July 30, 2013	5:30 am to 12:00 pm	Sunny with few clouds, ± 20°C, gentle breeze, no trace of precipitation	JR
August 23, 2013	10:00 am to 1:00 pm	Sunny with few clouds, ± 21°C, gentle breeze, no trace of precipitation	JR
January 16, 2014	10:00 am to 11:30 am	Sunny with few clouds, - 5°C, gentle breeze, scattered precipitation	JR

* AR – Ann Rocchi (Fisheries Biologist), JR – Jaclyn Rodo (Biologist).

Prior to the site visits, satellite imagery, topographic maps and information gathered from the regulatory agencies were reviewed to begin delineations of vegetation communities and NHFs. Delineations were a starting point to allow for ground-truthing of these areas.

5.2.1 Vegetation Communities

The Ecological Land Classification System for Southern Ontario (ELC; Lee *et al.* 1998, OMNR 2008) is technical guide used throughout ecoregions 6E and 7E as a standardized system to classify landscapes. The system allows for classification of aquatic, wetland and terrestrial systems using parameters such as water depth, vegetative species and their distribution, and soil moisture. Due to the urbanized nature of the Study Area and influence of anthropogenic activities, ELC communities are limited to:

- Cattail Mineral Shallow Marsh Type (MASM1-1);
- Fresh – Moist Deciduous Woodland Ecosite (WODM5)
- Aquatic System (AQ); and

- Constructed.

Please refer to Appendix C for the complete list of flora and fauna identified.

5.2.1.1 Cattail Mineral Shallow Marsh Type (MASM1-1)

A Cattail Mineral Shallow Marsh Type (MASM1-1) occurs north and south of the Front Road bridge and within the Marshlands Conservation Area (Figure 3, Appendix D, Photo 1 & 2).

The perimeter of Cataraqui Creek was dominated by Cattail (i.e. *Typha latifolia* and *Typha angustifolia*) and is associated with the PSW. The MASM1-1 abuts the north and south side of Front Road bridge and causeway (Appendix D, Photo X).

Cattail occurs within the Marshlands Conservation Area, abutting the north side of Front Road (Figure 3).

5.2.1.2 Fresh – Moist Deciduous Woodland Ecosite (WODM5)

A thin strip of Fresh – Moist Deciduous Woodland Ecosite (WODM5) occurs northeast of the Front Road bridge (Figure 3). Overhead hydro-lines extend along the roadside, within this community. The canopy and sub-canopy included Trembling Aspen (*Populus tremuloides*), Paper Birch (*Betula papyrifera*) and White Willow (*Salix alba*).

This community is part of the significant woodland identified within the City's OP (City of Kingston 2010).

5.2.1.3 Aquatic System (AQ)

An Aquatic System consisting of Open Water (OA) and Shallow Water (SA) was documented within and adjacent to the Study Area. The Open Water (OA) community generally consisted of water with a depth greater than 2 m and no visible vegetation. The OA community occurred centrally within the channel of Little Cataraqui Creek and is also along the Lake Ontario shoreline. Depths less than 2 m and possessing visible aquatic vegetation constitute an SW community. Pockets of Floating-leaved Shallow Aquatic vegetation consisting of more than 25% of the water's surface was observed within inlets of the MASM1-1 community, north and south of the Front Street bridge.

5.2.1.4 Constructed

The Study Area was comprised mostly of Constructed type, including Golf course, roadway, residential commercial/industrial, education and health. Vegetation of this area consisted of native species occurring within the road Right of Way (ROW) such as Pineapple-weed Chamomile (*Matricaria discoidea*), Vetch (American Purple Vetch (*Vicia* spp.) and Birds-foot Trefoil (*Lotus corniculatus*). Landscaping of the parkland, educational and commercial/industrial areas possessed native species, including Sugar Maple (*Acer saccharum*), Spruce (*Picea* spp.), and Red Oak (*Quercus rubra*) and also introduced species such as Norway Maple (*Acer platanoides*). Within the residential areas, native trees were present; however, shrub and groundcover was dominated by ornamentals, such as Spirea (Spiraea spp.), Hostas (*Hosta* spp.) and Lilies (*Lilium* spp.).

5.2.2 Wildlife

5.2.2.1 Birds

Breeding bird surveys were completed on three (3) separate occasions to document the presence of birds located within or adjacent to the Study Area. Surveys occurred during the nesting period (May 1 to July 31st, Canadian Wildlife Service 2012), thirty minutes before sunset, and during periods of little to no wind or precipitation (OMNR 1998).

Various points along Front Road were surveyed for 3 minutes. Focus areas including the Front Road bridge and the Marsh Lands Conservation Area were surveyed for an extended period (i.e. 30 minutes) and occurrences documented (Appendix C). Incidental observations of birds (i.e. during amphibian and vegetation surveys) were also documented. Barn Swallow (*Hirundo rustica*), a provincially Threatened species was observed south of Front Road, approximately 50 m south of the lakeside walking trail (Figure 3). This species displayed foraging behaviour.

The Front Road bridge was closely inspected during breeding bird surveys to assess for potential swallow nests or other fauna habitat. No nests were observed on the structure and no swallows were observed within close vicinity of the bridge.

Two (2) Ospreys (*Pandion haliaetus*) were observed within the Study Area, one (1) within a nest southwest of the Front Road bridge and one (1) flying overhead.

Canada Geese (*Branta canadensis*) were observed north and south of the Front Road causeway, within upland vegetation typical of roadsides. This area and the shoreline south of the Front Road causeway provides suitable nesting sites. Geese and Mallards (*Anas platyrhynchos*) were observed crossing the Front Road causeway.

A complete list of birds is included in Appendix C.

5.2.2.2 Mammals

Observations of mammals were recorded during the site visits and were based on incidental contact, scat evidence, and track identification, and were consistent with species known to occupy this area.

One (1) mammal, Eastern Gray Squirrel (*Sciurus carolinensis*), was confirmed within the Study Area.

5.2.2.3 Herpetofauna

Amphibian surveys were conducted on two (2) separate occasions and were based on the Marsh Monitoring Program amphibian survey methodology (Bird Studies Canada undated). Two surveys were conducted between April and July 5th, were three minutes in duration and commenced no earlier than one half-hour after sunset and ended before midnight. Surveys took place during evenings with little wind and minimum night air temperatures.
No frogs were heard or observed during either survey. Green Frogs (*Lithobates clamitans*) were heard calling within the MASM1-1 community north of Front Road bridge during aquatic assessments.

A Northern Watersnake (*Nerodia sipedon sipedon)* was observed ingesting a juvenile Round Goby (*Neogobius melanostomus*) south of the Front Road bridge, immediately adjacent to the shoreline.

A crushed carapace of a Snapping Turtle (*Chelydra serpentina*) was observed on Front Road, immediately east of Front Road bridge. It is likely that this was a result of a vehicle collision.

5.2.3 Fish and Fish Habitat

Fish habitat assessments were completed to determine the sensitivity of fish and fish habitat within the Study Area.

Two (2) permanent, and one (1) intermittent water feature was identified within or adjacent to the Study Area, including Little Cataraqui Creek, Lake Ontario shoreline and an intermittent tributary to Lake Ontario (Figure 3). Each water feature is described below.

5.2.3.1 Little Cataraqui Creek

Little Cataraqui Creek is a permanent feature flowing southward into Lake Ontario. The Creek is moderately sinuous, moderately flowing and possessed average wetted width of 350 m within the study area. The Cattail Mineral Shallow Marsh community occurs along both banks of the creek. Although

constituting a separate community type, as per ELC designation (i.e. MASM1-1), there is no barrier between the creek and the Cattail community. Substrate of the Cattail community consisted of muck, while the main channel immediately south of Front Road bridge consisted primarily of gravel (80%) and large boulders (20%). In-stream vegetation was scarce (i.e. less than 5%). Riparian cover consisted of Cattail of the MASM1-1 community (97%), with limited cover provided by graminoid and roadside vegetation (3%) adjacent to the bridge. Riparian vegetation shades less than 5% of the creek.

The watercourse is channelized to an approximate width of 15 m at the Front Road. The depth of the creek at the bridge is approximately 2.75 m.

5.2.3.2 Lake Ontario Shoreline

The shoreline south of the Front Road causeway (Appendix D, Photo 5) is uniform; gradually sloping into the water. Substrate consists primarily of gravel (70%), scattered boulders (25%) and fine sediments (5%). Large limestone boulders and small gravel occur along the shoreline and extend partly in the water and appear to have been placed das part of shoreline stabilization practices. Riparian vegetation consisted primarily of Cattail with few trees, including, Willow (*Salix* spp.), and Manitoba Maple (*Acer negundo*).

A shoreline walking path begins east of the Front Road causeway. Large limestone boulders occurred between the path and shoreline. The boulders accumulated free-floating aquatic vegetation, forming mats on the surface of the water. Several large cyprinids (likely Common Carp, *Cyprinus carpio*) approximately 60 cm in length were observed swimming near the vegetation mats.

The shoreline of the inlet, south of Marshlands Conservation Area has been stabilized with large limestone boulders (Appendix D, Photo 6). The inlet was approximately 1 m deep at 7 m from shore and substrate comprised almost entirely of sand (95%) with a few scattered boulders (5%). Aquatic vegetation was scarce and riparian vegetation was minimal and limited to only a few trees (i.e. Salix spp.) along the northeast corner of the inlet.

The shoreline of the Portsmouth Olympic Harbour has been stabilized with sheet piling, large boulders or a combination of both (Appendix D, Photo 7). The depths of the harbour likely exceed 2 m to allow boat navigation. Limited visibility did not allow for confirmation of substrate composition. Limited submergent vegetation was visible from the docks and pier at the south end of the harbour. Limited riparian cover exists along the shoreline due to the constructed nature (e.g. docks, shoreline stabilization, etc.).

5.2.3.3 Intermittent Tributary

An intermittent tributary occurs within Marshlands Conservation Area and crosses southward under Front Road through a corrugated steel pipe culvert. The watercourse occurs within a Cattail Mineral Shallow Marsh immediately north of Front Road. A pool occurs at the north edge of the culvert, approximately 2 m^2 in area and a depth of 50 cm (Appendix D, Photo 8). The pool diminishes into a poorly defined channel with intermittent small pockets of water (i.e. depth of 2 -6 cm) and saturated soils north of the pool. The watercourse possesses a bankful width of approximately 50 cm and a substrate consisting of muck (70%), sand (25%) and detritus (5%). Cattail shade almost 100% of the watercourse.

5.2.3.4 Aquatic Sampling

Baited minnow traps were set at five (5) locations within the Study Area (Figure 3) on June 21, 2013 and pulled June 22, 2013 and set again on July 4, 2013 and pulled on July 5, 2013. Traps were set in a minimum depth of 50 cm of water at all stations. Two (2) fish species were captured at Station 5 including Round Goby (*Neogobius melanostomus*) and unidentified Darter (*Etheostoma* spp.). No other fish were captured. Four (4) large cyprinids (likely Common Carp) were observed at Station 3, near the accumulated vegetation mat.

6. Natural Heritage Feature Impact Assessment

The following sections outline the NHF's as defined by the PPS and their presence on or within 120 m of the Study Area.

6.1 Significant Habitat of Endangered or Threatened Species

Significant habitat can be defined as habitat necessary for the maintenance, survival, and/or recovery of naturally occurring or reintroduced populations of endangered and threatened species; and those areas that are occupied or habitually occupied by the species during all or any part of its life cycle (Ontario Ministry of Natural Resources 2010). The MNR is directly responsible for identifying, listing and conducting ongoing assessments for Species at Risk and their related habitats.

Species at Risk (i.e. Threatened or Endangered) identified during agency and database consultation (Section 4.0), were reviewed for potential to occur within the Study Area. The following table ranks the species occurrence potential as None, Low, Moderate, or High, based on habitat observed during on site investigations.

Table 3: Potential Species at Risk identified within Background Information

Species	S-Rank[1]	SARO[2]	SARA[3]	Habitat Description	Habitat Potential[4]
BIRDS					
Barn Swallow *Hirundo rustica*	S4B	THR	No Status	This species can be found in many habitats types such as agricultural, urban and coastal. They will nest in agricultural building or construct their nest on bridges.	High
Bobolink *Dolichonyx oryzivorus*	S4B	THR	No Status	This species build nests on the ground, in dense grasses such as unmaintained hayfields.	Low
Chimney Swift *Chaetura pelagica*	S4B,S4N	THR	THR	The species feeds in flocks around water bodies. Nesting occurs in large, hollow trees or in the chimneys of houses in urban and rural areas.	Moderate
Common Nighthawk *Chordeiles minor*	S4B	SC	THR	The species nests in areas with little to no ground vegetation, such as logged or burned-over areas, forest clearing, rock barrens, etc.	Low
Eastern Meadowlark *Sturnella magna*	S4B	THR	No Status	This species prefers pastures, open fields and overgrown vegetation along roadsides.	Low
Least Bittern *Ixobrychus exilis*	S4B	THR	THR	This species breeds in stable marshes with emergent vegetation, such as cattails, and areas with open water. They are typically found in large, quiet marshes.	Moderate
Loggerhead Shrike *Lanius ludovicianus migrans*	S3B	END	END	This species prefers meadows with scattered shrubs.	Low
Red-headed Woodpecker	S4B	SC	THR	The species lives in open woodlands and woodland edges,	Low

Species	S-Rank[1]	SARO[2]	SARA[3]	Habitat Description	Habitat Potential[4]
Melanerpes erythrocephalus				most commonly in oak savannah and riparian forest, where dead trees are used for nesting and perching.	
Henslow's Sparrow *Ammodramus henslowii*	SHB	END	END	This species prefers open fields possessing tall grasses and herbaceous plants.	Low
Northern Bobwhite *Colinus virginianus*	S1	END	END	This species is often associated with agricultural fields, thickets, young forests or hedges.	Low
King Rail *Rallus elegans*	S2B	END	END	This species is found in large, heavily vegetated, shrub marshes.	Low
HERPETOFAUNA					
Blanding's Turtle *Emydoidea blandingii*	S3	THR	THR	This species inhabits lakes, slow-moving streams and wetlands, preferring shallow wetland areas with abundant aquatic vegetation.	High
Eastern Hog-nosed Snake *Heterodon platirhinos*	S3	THR	THR	This species prefers well-drained habitats such as a beach, in close proximity to wetland areas.	Low
Gray Ratsnake *Pantherophis spiloides pop. 1*	S3	THR	THR	This species prefers habitat with a combination of woodland pastures/fields and marches.	Low
FISH					
Lake Sturgeon *Acipenser fulvescens pop. 3*	S2	THR	THR	This species prefers large rivers or lakes between 5 and 10 m deep, over clay with mud, sand and/or gravel.	Low

[1] Protection priority Provincial Rank (NHIC 2012); 1 - Critically Imperiled, 2 - Imperiled, 3 - Vulnerable, 4 - Apparently Secure, 5 – Secure; SX-Presume Extirpated, SH – Possibly Extirpated, SNR – Unranked, SU-Unrankable, SNA – Not Applicable, S#S# -Rank Range, S#B – Breeding migrants and S#N – Non-breeding migrants;
[2] Species protected under the provincial Endangered Species Act; END – Endangered, THR – Threatened, SC – Special concern;
[3] Species protected under the federal Species at Risk Act (2007); and
Species not at Risk – NAR.
[4] Habitat Potential – None, Low, Moderate or High

Species were deemed having a Low occurrence potential when key habitat traits (e.g. breeding, spawning, nesting, migration route, foraging sites, etc.) were not observed or documented for the Study Area or adjacent areas. A Moderate habitat potential indicates the presence of key habitat traits within the Study Area, while High potential indicates the presence of key habitat traits and confirmation of the species on or within the vicinity of the Study Area.

Barn Swallow was identified within the Study Area (Figure 3), during a breeding bird survey carried out the morning of June 22, 2013. Three (3) adults were observed foraging over the Lake Ontario shoreline. This species is dependent on open areas (e.g. waterbodies) which support a source of flying insects. On average, the species travels less than 200 m away from the nest while caring for young (OMNR 2012). Structures within 200 m of the observation include a pier extending into Lake Ontario and multi-density residential building (Figure 3). Both structures have potential to support Barn Swallow nests.

Chimney Swift was not observed within the Study Area during site investigations. The species is commonly observed in urban areas and finds nesting opportunities in chimneys or other man-made structures. The variety of buildings within the Study Area may provide suitable nesting opportunities for this species.

Least Bittern prefers Cattail wetlands and generally builds their nest within vegetation adjacent to open water. The species was confirmed breeding within the Little Cataraqui Creek Provincially Significant Wetland (Kingston Field Naturalists 2004). The species is known to be very secretive and are unlikely to build nests close to anthropogenic activities. Traffic and activity along Front Road is likely to deter the species from nesting within the Study Area.

6.2 Significant Wildlife Habitat

Wildlife habitat is defined as areas where plants, animals, and other organisms live and find adequate amounts of food, water, shelter, and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual life cycle; and areas which are important to migratory on non-migratory species (OMMAH 2005).

Wildlife habitat is referred to as significant if it is ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System (OMMAH 2005).

Guidelines and criteria for the identification of significant wildlife habitat are detailed in the Significant Wildlife Habitat Technical Guide (OMNR 2000a), the Natural Heritage Reference Manual (OMNR 1999), and the Significant Wildlife Decision Support System (OMNR 2000b). Significant wildlife habitat is described under four main categories:

- Habitats of species of conservation concern;
- Seasonal concentrations of animals;
- Rare vegetation communities or specialized habitats for wildlife; and
- Wildlife movement corridors.

6.2.1 Habitats/Species of Conservation Concern

Habitats of species of conservation concern generally include the groups listed below:

- Habitat of species or an individual species that are rare or significantly declining in Ontario;
- Habitat of species or an individual species that have a high percentage of their global population in Ontario;
- Species identified as ‘special concern’ by SARO;
- Species identified as endangered or threatened federally (i.e., SARA) that are not protected under Ontario’s ESA (OMNR 2010).

Habitats of species of conservation concern do not include any habitats of endangered or threatened species covered under section 2.1.3(a) of the PPS (i.e. significant habitats of endangered or threatened species).

Special Concern species identified during agency and database consultation (Section 4.0) were reviewed for potential to occur within the Study Area based on known habitat preferences. The following table ranks the species occurrence potential as None, Low, Moderate or High, based on habitat observed during on site investigations.

Table 4: Special Concern Species identified within Background Information

Species	S-Rank[1]	SARO[2]	SARA[3]	Habitat Description	Habitat Potential[4]
BIRDS					
Black Tern *Chlidonias niger*	S3B	SC	NAR	The species requires large, shallow, quiet marshes where their floating nests are not subject to disturbance from humans or boat traffic.	Moderate
Peregrine Falcon *Falco peregrinus*	S3B	SC	SC	This species general nests in remote areas, on cliff overlooking water bodies, or they nest in urban environments, on tall building overlooking waterbodies.	Low
HERPETOFAUNA					
Northern Map Turtle *Graptemys geographica*	S3	SC	SC	This species typically occurs in large bodies of water such as: Southern Great Lakes, Lake St. Clair, Thames River, Grand River and Ottawa River.	Moderate
Snapping Turtle *Chelydra serpentina*	S3	SC	SC	This species prefers large bodies to small ponds containing dense vegetation.	High
Eastern Milksnake *Lampropeltis triangulum*	S3	SC	SC	This species is typically found in rural areas, and most commonly found within or outside agricultural buildings, within close proximity to water.	Low
Western Chorus Frog *Pseudacris triseriata pop. 2*	S3	NAR	THR	This species can be found in moist cultivated, meadow or forests. Tadpoles develop within vernal pools or low-flow, shallow water, absent of fish.	Moderate
INSECTS					
Monarch Butterfly *Danaus plexippus*	S2N,S4B	SC	SC	This species is typically located in meadows possessing Milkweed or areas with wildflowers.	Moderate

[1] Protection priority Provincial Rank (NHIC 2012); 1 - Critically Imperiled, 2 - Imperiled, 3 - Vulnerable, 4 - Apparently Secure, 5 – Secure; SX-Presume Extirpated, SH – Possibly Extirpated, SNR – Unranked, SU-Unrankable, SNA – Not Applicable, S#S# -Rank Range, S#B – Breeding migrants and S#N – Non-breeding migrants;
[2] Species protected under the provincial Endangered Species Act; END – Endangered, THR – Threatened, SC – Special concern;
[3] Species protected under the federal Species at Risk Act (2007); and
Species not at Risk – NAR.
[4] Habitat Potential – None, Low, Moderate or High

Species were deemed having a Low occurrence potential when key habitat traits (e.g. breeding, spawning, nesting, migration route, foraging sites, etc.) were not observed or documented for the Study Area or adjacent areas. A Moderate habitat potential indicates the presence of key habitat traits within the Study Area, while High potential indicates the presence of key habitat traits and confirmation of the species on or within the vicinity of the Study Area.

Black Tern may find nesting habitat within the Cattail of the Little Cataraqui Creek Provincially Significant Wetland. Anthropogenic activity along Front Road may deter birds from nesting within proximity to the road and otherwise, the Study Area.

Northern Map Turtle may find suitable habitat within the Little Cataraqui Creek Provincially Significant Wetland. Limited basking locations north of the Front Road bridge were identified; however, basking opportunities south of Front Road causeway, including partly submerged logs and boulders were present.

Snapping Turtle was confirmed within the Study Area. It is anticipated that this species may sit in the shallow depths of the Lake Ontario shoreline, south of the Front Road causeway surrounding Front Road bridge.

Western Chorus Frog is typical of open habitats and damp woods or swamps. They generally deposit eggs in non-fish-bearing water features, such as vernal pools. No vernal pools were identified within the Study Area during site investigations. It is anticipated that the forest areas north of the Study Area, within the Marhslands Conservation Area, may provide vernal pools in the spring.

Monarch may find habitat opportunities immediately south of the Front Road causeway. Upland species, including Milkweed and wildflowers occur south of the Front Road causeway, among the limited roadside vegetation throughout the study area and within Marshlands Conservation Area.

6.3 Significant Areas of Natural and Scientific Interest

Significant Areas of Natural and Scientific Interest (ANSI) are defined as areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education.

The NHIC database (OMNR 2013a) and LIO (NHIC 2013b) did not reveal any ANSI's within the Study Area. The OP identifies an ANSI approximately 650 m north of the Front Road bridge (City of Kingston 2010).

6.3.1 Seasonal Concentration Areas

Areas of seasonal concentrations of animals are "areas where animals occur in relatively high densities for the species at specific periods in their life cycles and/or in particular seasons" (OMNR 2010). During these times wildlife is most vulnerable to disturbance or the effects of weather. These areas are generally small and localized when compared to the habitat of a species used at other times of the year. Identifying these habitats is typically done based on known season concentration areas (OMNR 2000a).

Review of background information and agency consultation did not reveal any known seasonal concentration areas on the proposed development site. Site surveys with the use of the OMNR Significant Wildlife Habitat Technical Guide (2000a) were utilized to evaluate the potential for these areas. The proposed development site was determined not to contain any areas that were classified as seasonal concentration areas.

6.3.1.1 Deer Winter Yards/Moose Late Winter Habitat, Feeding Area

Deer and moose typically move to coniferous forests (e.g., pine, hemlock, cedar, spruce) in the winter to allow for easier movement and protection from the weather (OMNR 2000a).

Site investigations did not reveal any evidence of White-tailed Deer within the Study Area. Background information revealed deer approximately 800 m southwest of the Front Road bridge (Ecological Services 2011). Review of aerial imagery indicates a continuous, undeveloped landscape extending from Front Road to Bath Road, just west of the Study area. An industrial property exists south of Front Road and maintains undeveloped areas. Deer may move throughout this area, west of the Study Area. No thermal cover or woody browse areas were identified within the Study Area and is anticipated the Study Area does not support Deer winter yards or feeding areas.

6.3.1.2 Waterfowl/Shorebird/Colonial Bird Stopover, Staging or Nesting Areas

Waterfowl and colonial birds rely on water habitats for migration, staging, breeding, moulting and wintering (OMNR 2010). In Ontario, significant waterfowl habitats are mapped by special interest groups, such as the Ontario Ornithological Society and the MNR.

The Study Area includes Little Cataraqui Creek and Lake Ontario shoreline. These areas provide waterfowl and shorebird stopover locations. Several groups of adult Mallard, ducklings, adult Canada Geese and goslings were observed south of the Front Road causeway, throughout Cataraqui Bay. Other shorebirds, including Common Tern (*Sterna hirundo*) and Double-crested Cormorant (*Phalacrocorax auritus*) were observed flying overhead and observed foraging within Cataraqui Bay. Canada Geese were observed crossing Front Road, within the vicinity of Front Road bridge. No nests were observed, but is anticipated that nesting geese may utilize the Lake Ontario shoreline south of Front Road, or areas north of Front Road bridge.

LIO mapping identified a Herring Gull (*Larus argentatus*) and Cormorant (*Phalacrocorax* spp.) nesting/colony site approximately 3 km south of Front Road bridge.

6.3.1.3 Raptor Winter Feeding/Roosting Area, Wild Turkey Winter Range, Vulture Roosting Area

Raptors and wild turkeys typically use open habitats, such as hayfields, pastures and meadows, for winter feeding. Preferred roosting habitat includes mature mixed or coniferous woodlands. Turkey vultures typically roost on cliff ledges or large, dead trees in areas that are relatively undisturbed and have preferred wind currents (OMNR 2010).

A Turkey Vulture (*Cathartes aura)* was observed flying overhead and appeared to be passing over the Study Area. The Study Area does not contain cliff edges or cover opportunities suitable for Turkey Vultures.

There was no evidence of Wild Turkey within the Study Area. No food sources (e.g. agricultural fields) or roosting and overwintering areas were identified within the Study Area.

A man-made Osprey tower was situated approximately 30 m southwest of the Front Road bridge. An adult Osprey was perched in the nest on the tower and an Osprey observed flying overhead.

6.3.1.4 Reptile Hibernacula

Reptiles overwinter in specific habitats and at times in sizeable concentrations. These habitats include “animal burrows, rock crevices, and other areas that enable the animal to hibernate below the frost line” (OMNR 2010).

WSP consulted the Ontario Reptile and Amphibian Atlas (Ontario Nature 2011) for distribution maps of species. Hibernacula opportunities were assessed during on site investigations. No rock piles (i.e. dry and extending below the frost line), crevices, cliffs, large woodlands (i.e. great than 30 ha) or other potential hibernacula areas were identified.

6.3.1.5 Amphibian Concentration Area

Amphibians require water habitats, permanent and ephemeral, in order to survive. Concentrations of amphibians (e.g., bullfrogs) may be identified in wetland areas. Most amphibians include both terrestrial and water source components in their life cycle completion. They breed in ponds with minimal or no flow, that have abundance fringe vegetation and woody debris and eggs are laid in the spring. Habitats with woodland corridors are required to facilitate the species to disperse into adjacent terrestrial environments. Canopy cover is also required for the maintenance of a moist substrate layer and support microclimate formation (OMNR 2010).

Green Frog (*Rana clamitans*) was heard calling from the area north of Front Road bridge and two (2) individuals were distinguished.

Amphibian breeding generally takes place in no-flow to very low-flow conditions. Inlets of the Little Cataraqui Creek and the associated MASM-1 type vegetation community may provide emergent vegetation and flow conditions suitable for amphibian reproduction.

6.3.1.6 Bat Hibernacula

Bats overwinter in habitats with specific requirements, including interior air temperatures, relative humidity levels and sufficient space for roosting. Deep caves and abandoned mines function as preferred bat hibernacula.

During site surveys the Study Area was assessed for the presence of potential bat hibernacula. No hibernacula areas were identified within background information, agency consultation or identified during site investigations.

6.3.1.7 Rare or Specialized Habitats

Rare habitats include those with vegetation that is deemed to be rare by the province or within the planning area. These specialized areas may also support rare animal species (OMNR 2000a). There are no records in the NHIC database of rare vegetation or animal species on the proposed development site. Furthermore, site surveys did not identify any rare or specialized vegetation habitats (Table 5) or wildlife habitats (Table 6) that may support rare or endangered species.

Table 5: Habitats of Rare Vegetation Communities

Habitat	Observations
Alvar	Not Present
Savannahs	Not Present
Cliff	Not Present
Rare Forest	Not Identified
Sand Barrens	Not Present
Great Lakes Dunes	Not Present
Prairie / Savannah / Grassland	Not Present
Riparian Zone	Not Present
Lake	Present
Shoreline	Present
Rock Barrens	Not Present
Tallus Slope	Not Present
Seep / Spring	Not identified
Cave / Mine	Not Present
Mature, Natural Conifer Stands	Not Present
Mature Oak, Oak-Hickory Stands	Not Present
Temporary Wetlands	Present

Table 6: Specialized Wildlife Habitats

Habitat	Observations
Winter Deer Yard	Not Identified
Moose Aquatic Feeding Areas	Not Identified
Mineral Licks	Not Identified
Calving Areas	Not Identified
Mink / Otter/ Marten / Fisher Denning sites	Not Identified
Foraging Areas With Abundant Mast	Not Identified
High Diversity Areas	Not Identified
Specialized Raptor Nesting Area	Not Identified
Old Growth or Mature Forest	Not Identified
Amphibian Woodland Breeding Ponds	Not Identified
High Diversity Forest Habitat	Not Identified
Cliffs	Not Identified
Turtle Nesting Habitat	Potential

6.4 Animal Movement Corridors & Linkage Areas

Migration corridors are defined as habitats that link two or more wildlife habitats. Generally, the established links function as critical components allowing for the maintenance of species populations and enable wildlife groups to migrate between high ecological value areas with minimum mortality (OMNR 2010).

The City of Kingston OP (City of Kingston 2010) indicates a linkage and/or corridor extending from Lake Ontario to Little Cataraqui Creek.

Chinook Salmon (*Oncorhynchus tshawytscha*), Coho Salmon (*Oncorhynchus kisutch*) and American Eel (*Anguilla rostrata*) are known to utilize Cataraqui River as a migration route for spawning or habitat areas (Bowfin Environmental Consulting 2011). It is possible that Little Cataraqui Creek could function similarly to Cataraqui Creek for these or other migrating Lake Ontario fish.

Fish likely move between Lake Ontario and Cataraqui River to carry out reproductive processes such as spawning (Bowfin Environmental Consulting 2011).
Turtles likely move between Little Cataraqui Creek and the shoreline of Lake Ontario, either under Front Road bridge or over the Front Road causeway. Evidence of a dead Snapping Turtle was observed on Front Road adjacent to the Front Road bridge. Turtles may transverse the causeway during movement throughout their home range.

Similarly, Canada Geese (e.g. adults and goslings) were observed crossing the Front Road causeway. Geese will likely move throughout this area, including crossing the Front Road causeway during periods of nesting and fledging.

6.5 Significant Wetlands

Wetlands are defined in the PPS as lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. There are four major wetland types; swamps, marshes, bogs, and fens (OMMAH 2005). A significant wetland is defined as an area identified

as provincially significant by the Ministry of Natural Resources using evaluation procedures established by the province, as amended from time to time (OMMAH 2005).

Little Cataraqui Creek Complex PSW (Figure 3) occurs immediately north of the Front Road bridge. Unevaluated wetland occurs north and south of the bridge.

6.6 Significant Woodlands

Significant Woodlands are defined as treed areas that provide environmental and economic benefits such as erosion prevention, water retention, and provision of habitat, recreation and the sustainable harvest of woodland products. No development or site alteration is permitted to occur within "significant woodlands south and east of the Canadian Shield unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions" (OMMAH 2005).

The OP depicts a significant woodland north of the Front Road causeway. This area is described as a WODM5 (Section 5.2.1, Figure 3, City of Kingston 2010).

6.7 Significant Valleylands

The PPS refers to Significant Valleylands as "a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year". The local planning authority is responsible for identifying and evaluating Significant Valleylands (OMMAH 2005).

The OP depicts a Significant Valleyland encompassing Little Cataraqui Creek, through to the area south of Front Road bridge (City of Kingston 2010).

6.8 Fish Habitat

Fish habitat as defined by the *Fisheries Act*, c. F-14 includes the spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes. The Act also includes a broader definition of fish as shellfish, crustaceans, and marine mammals at all stages of their life cycles.

Direct fish habitat occurs in and adjacent to the Study Area, including Lake Ontario, Little Cataraqui Creek and an intermittent watercourse identified within the Marshlands Conservation Area.

6.9 Significant Feature Summary

A summary of the significant NHF identified on or adjacent to the site are provided in the table below. This summary is based on findings of field assessments and background information collection (Section 4.0). Mitigative measures may have to be considered for all work conducted in the area in order to minimize the effects of the development on these natural features.

Table 7: Significant Feature Summary

Feature	Present	Comment
Fish Habitat	Yes	Little Cataraqui Creek, Lake Ontario and an intermittent tributary within Marshlands Conservation Area supports permanent and/or seasonal fish populations. The area may be used as a migration corridor for fish.
Significant ANSI	No	A review of available background documentation indicates that no Significant ANSI exists on or within 120 m of the Site.
Threatened or Endangered Species Habitat	Yes	Barn Swallow was confirmed within 120 m of the Study Area.

Feature	Present	Comment
Significant Wetland	Yes	Little Cataraqui Creek Complex Provincially Significant Wetland occurs within the Study Area.
Significant Wildlife Habitat	Yes	A review of existing background documentation and field investigations indicate that the area may be used as a migratory stopover site for shorebirds and/or waterfowl.
Significant Woodland	Yes	A review of existing background documentation indicates that a Significant Woodland occurs within the Study Area.
Significant Valleyland	Yes	A review of existing background documentation indicates that a Significant Valleyland occurs within the Study Area.

7. Preliminary Screening of Alternatives

Three (3) alternatives were assessed with respect to site information gathered from baseline field investigations and background information.

7.1 Do Nothing

The do nothing alternative will maintain current conditions and will not impact the form and function of existing natural heritage features.

7.2 Route Option 1: King Street West

This Option extends from the Kingston West Sewage Treatment Plant, along Front Road from to the Portsmouth pumping station, west of Sir John A MacDonald (Appendix A). The route is similar to Option 2, with a modification to easternmost (approximate) 350 m, which extends directly along Front Road/King Street West to the Portsmouth pumping station.

The route option will cross Little Cataraqui Creek and the intermittent watercourse within the Marshlands Conservation Area. Additionally, it will extend through or immediately adjacent to Little Cataraqui Creek Complex PSW, Lake Ontario shoreline, a Significant Forest and a Significant Valleyland.

Potential impact related this option may result from, vegetation clearing/grubbing, excavation, dredging, placement of material, use of industrial equipment, flow management practices, water extraction or construction timing.

If geotechnical conditions support it, the watercourse crossings could be accomplished by HDD with impacts limited to the terrestrial areas surrounding the drill entrance and exit points. There is potential for "frac-out", in which the pressure from the drilling operations cause a fracture in the substrate above the drill and releasing fine material into the aquatic environment above (DFO 2007). Overall, impacts are anticipated to be temporary and are associated with construction activities. Application of mitigation measures will reduce or eliminate potential impacts (Table 8).

Construction activities may result in a harmful alteration, disruption or destruction (HADD) of fish habitat of Little Cataraqui Creek and the unnamed tributary to Lake Ontario, extending through Marshlands Conservation Area. A detailed impact assessment should be undertaken upon completion of the detailed design to assess design specific impacts of the construction works.

7.3 Route Option 2: Kennedy Street

This Option extends from the Kingston West Sewage Treatment Plant, along Front Road from Sandy Bay Lane, northeast along Union Street, east along Kennedy Street to the Portsmouth pumping station, west of Sir John A MacDonald.

The route option will cross Little Cataraqui Creek and the intermittent watercourse within the Marshlands Conservation Area. Additionally, it will extend through or immediately adjacent to Little Cataraqui Creek Complex PSW, Lake Ontario shoreline, a Significant Forest and a Significant Valleyland.

Potential impact related this option may result directly from construction works, including, vegetation clearing/grubbing, excavation, dredging, placement of material, use of industrial equipment, flow management practices, water extraction or construction timing.

If geotechnical conditions support it, the watercourse crossings could be accomplished by HDD with impacts limited to the terrestrial areas surrounding the drill entrance and exit points. There is potential for "frac-out", in which the pressure from the drilling operations cause a fracture in the substrate above the drill and releasing fine material into the aquatic environment above (DFO 2007).

Overall, impacts are anticipated to be temporary and are associated with construction activities. Application of mitigation measures will reduce or eliminate potential impacts (Table 8).

Construction activities may result in a harmful alteration, disruption or destruction (HADD) of fish habitat of Little Cataraqui Creek and the unnamed tributary to Lake Ontario, extending through Marshlands Conservation Area. A detailed impact assessment should be undertaken upon completion of the detailed design to address design specific impacts of the construction works.

7.4 Route Option 3: Baiden Street

This Option extends from the Kingston West Sewage Treatment Plant, along Front Road from to Portsmouth Avenue, then extends along Baiden Street for approximately 500 m to Kennedy Street, before extending southward to the Portsmouth Pumping Station (Appendix A).

The route option will cross Little Cataraqui Creek and the intermittent watercourse within the Marshlands Conservation Area. Additionally, it will extend through or immediately adjacent to Little Cataraqui Creek Complex PSW, Lake Ontario shoreline, a Significant Forest and a Significant Valleyland.

Potential impact related this option may result from, vegetation clearing/grubbing, excavation, dredging, placement of material, use of industrial equipment, flow management practices, water extraction or construction timing.

If geotechnical conditions support it, the watercourse crossings could be accomplished by high pressure directional drilling (HDD) with impacts limited to the terrestrial areas surrounding the drill entrance and exit points. There is potential for "frac-out", in which the pressure from the drilling operations cause a fracture in the substrate above the drill and releasing fine material into the aquatic environment above (DFO 2007). Overall, impacts are anticipated to be temporary and are associated with construction activities. Application of mitigation measures will reduce or eliminate potential impacts (Table 8).

Construction activities may result in a harmful alteration, disruption or destruction (HADD) of fish habitat of Little Cataraqui Creek and the unnamed tributary to Lake Ontario, extending through Marshlands Conservation Area. A detailed impact assessment should be undertaken upon completion of the detailed design to assess design specific impacts of the construction works.

Table 8: Stressors related to potential impact and general mitigation measures related to the Natural Environment

Options	Stressor	Potential Impact	Mitigation Measure or Avoidance Alternative	Residual Effect
Option 1 Option 2 Option 3	**Vegetation Clearing/Grubbing** Removal of ground cover vegetation and trees may be necessary.	• Reduced bank stability • Increased erosion/runoff entering watercourse, waterbody and wetland. • Alteration to existing aquatic and terrestrial habitats • See Construction Timing	• Secure work area with erosion control fencing prior to vegetation removal. Fencing should be inspected regularly. • Re-vegetate disturbed area with native planting, during appropriate periods. Erosion control fencing should remain in-place until plantings are established. • A minimum 1:1 native tree planting compensation plan to be employed. • Trees not proposed for removal, occurring within 30 m of the proposed development areas should be protected with tree protection fencing. • Stabilize banks to pre-disturbance condition.	Areas cleared of vegetation can be restored to pre-disturbance condition. No negative residual impact is anticipated.
Option 1 Option 2 Option 3	**Excavation** Terrestrial excavation necessary for placement of infrastructure, resulting in exposed soils.	• Increased erosion potential • Loss of vegetation	• See Vegetation Clearing/Grubbing. • Stockpiling of material on site should occur a minimum of 30 m for a watercourse, waterbody, wetland or other sensitive area.	Area will be restored to pre-disturbance condition. No negative residual impact is anticipated.
Option 1 Option 2 Option 3	**Dredging** Excavation of material from aquatic areas may be necessary to accommodate placement of infrastructure.	• Change of channel morphology • Barrier to fish passage • Increased sedimentation • Change of habitat structure • Change in food supply	• Use directional drilling, where possible • See Flow Management • Restore aquatic habitat to pre-disturbance condition (e.g. morphological elements, substrates, aquatic vegetation, etc.) • See Flow Management • Use trenchless method, where possible	Area will be restored to pre-disturbance condition. No negative residual impact is anticipated.
Option 1 Option 2 Option 3	**Placement of Material** Placement of foreign materials in aquatic and/or terrestrial environments may be necessary to support design criteria.	• Change in channel morphology • Barrier to fish passage • Disturbance to sensitive habitats • Increased erosion potential & sedimentation • Alteration of flow conditions • Change in habitat structure • Introduction of invasive species • Introduction of contaminants	• See Vegetation Clearing/Grubbing • See Dredging and/or Excavation • See Construction Timing • See Flow Management • Only material free of invasive species shall be brought on site. • Only clean material shall be brought on site.	Material brought on site will not negatively alter the form or function of the aquatic or terrestrial environments. No negative residual impact is anticipated.

Option 1 Option 2 Option 3	**Use of Industrial Equipment** Industrial equipment may be necessary to carry out excavation, dredging, vegetation clearing or construction activities.	• Increased erosion potential & sedimentation • Disturb or kill local fauna • Potential for oil, grease or fuel leaks	• See Vegetation Clearing/Grubbing • See Excavation and/or Dredging • See Flow Management • See Construction Timing • Prepare a spill management plan for on site activities • Ensure equipment is regularly maintained (i.e. free of leaks, clean) • Refuel equipment a minimum of 30 m from all watercourses, waterbodies, wetlands or other sensitive areas.	Application of mitigation measures will result in no change to the form and function of the aquatic and terrestrial environments. No negative residual impact is anticipated.
Option 1 Option 2 Option 3	**Flow Management** Activities such as dewatering, bank erosion and scouring of channel beds may alter flow conditions.	• Change in migration/access to habitats • Change in habitat structure and cover • Increased erosion potential and sedimentation • Change in water temperature, contaminant and nutrient concentrations	• Contain and dewater in-water work areas as per a work-specific isolation/containment plan. • Pumps should be outfitted with fish screens • Transfer fish captured from isolated areas, downstream • See Construction Timing.	Application of mitigation measures will result in no change to the form and function of the aquatic and terrestrial environments. No negative residual impact is anticipated.
Option 1 Option 2 Option 3	**Water Extraction** Water extraction (e.g. dewatering, placement of material) may be necessary to undertake construction works.	• Change in flow conditions • Disturbing or killing fish	• See Flow Management • See Placement of Material	Alteration to natural flow will be temporary. No negative residual impact is anticipated.
Option 1 Option 2 Option 3	**In-water Infrastructure** Placement of infrastructure in water may be necessary.	• Alteration to flow • Changes in water temperature • Changes to water chemistry • Barrier to fish passage • Change in migration/access to habitats • Mortality of contained fish	• See Flow Management • See Dredging • See Placement of Material • See Water Extraction • See Use of Industrial Equipment	No residual impact should occur, when the foremain is tunneled below the bed of the waterbody/watercourse. A raised or partly embedded forcemain may result in a residual effect, e.g. barrier to fish passage, alteration to habitat type, etc.

Option 1 Option 2 Option 3	**Construction Timing** Construction work may occur during one or more consecutive seasons.	• Impact to nesting birds • Impact to migration stopover site • Impact to Species at Risk (e.g. Barn Swallow) • Impact to spawning fish • Impact to nesting or overwintering turtles • Impacts to affect use of migration corridors or linkage areas	• See Species at Risk. • In-water work should adhere to the warmwater timing window, whereby work is not permitted between April 1st and June 30th of any given year. • No vegetation removal (e.g. ground cover, shrubs or trees) between May 1st and July 31st of any given year. Where vegetation removal is necessary within this period, a qualified biologist must first confirm vegetation is free of nesting birds and eggs. • Pre-construction inspection for turtles and snakes should be carried out. Construction activities should not occur during the turtle nesting season (i.e. May 15 to June 30). No in-water works should occur between October 15th and April 15th of any given year. • Exclusionary fencing should be erected in areas where turtles may be impacted. The fencing should extend 10-50 m beyond the endpoint and be angled to deter turtles from crossing the road.	Adherence to the construction timing windows will limit potential impact to species during critical life stages. No negative residual impact is anticipated.
Option 1 Option 2 Option 3	**Species at Risk** Species at Risk may be encountered during construction activities.	• Disturb or kill Species at Risk	• See Construction Timing • Where a Species at Risk is encountered on site, activities should stop immediately. The individual(s) must not be handled. The Ministry of Natural Resources should be contacted for further direction. • Pre-construction inspection for nesting fauna and eggs should be carried out prior to construction. • Where a Barn Swallow nest is observed, all construction activities should be restricted to April 15 to August 15 of any given year. Where construction in or surrounding a nest is necessary, structures (e.g. bridges) should be blocked with screen or tarps prior to April 15 (Elizabeth Spang, OMNR District Planner, pers. comm. July 26, 2013). • Exclusionary fencing should be placed along both sides of the Front Road causeway no later than the September prior to construction. The fencing should prevent turtles from accessing the area for overwintering or nesting.	Application of mitigation measures will result in no change to the form and function of the aquatic and terrestrial environments. No negative residual impact is anticipated.

7.5 Evaluation of Options & Preferred Alternative

The Do Nothing Option would have the no impact or negative residual effects from construction of the development. This Option would not support future development of the area.

Route options 1 through 3 extend primarily within the terrestrial environment, along Front Road, within or adjacent to a valleyland, woodland, wetlands and Lake Ontario shoreline. There are two (2) locations where in-water crossing will be necessary, including crossing of Little Cataraqui Creek at the Front Road bridge and across the intermittent watercourse located within the Marshlands Conservation Area. Potential impacts are related to the construction activities will be temporary and can be mitigated. Impacts related to critical life stages of local fauna (i.e. nesting birds, nesting & hibernating reptiles and spawning fish) can be mitigated through avoidance of these periods.

Options 1 through 3 have a Low Uncertainty with respect to impact assessment and mitigation measures. This indicates that the environment related to these Options is well understood and general mitigation measures are commonly used and have proven effective for similar works. With the application of mitigation measures, Options 1 through 3 are considered a Low to Medium Risk and all considered a preferred Option.

A Detailed-Design level study will be necessary to gather information related to the location and placement of the infrastructure and associated impacts. Mitigation methods specific to the Detailed-Design should be outlined and where residual impacts are identified, environmental enhancement and/or compensation considered.

8. Conclusions

Based on the preliminary assessment of this Natural Environment Assessment findings, we anticipate that the proposed development will not have a significant negative impact on the form or function of the identified NHFs present within the Study Area. Disturbance to the environment, associated with construction works are temporary and not anticipated to have residual impact.

We trust that this evaluation is satisfactory for your current needs. Please contact us if you have any questions.

Yours truly,
WSP Canada Inc.

Prepared by:

Jaclyn Rodo, B.Sc.
Biologist

Reviewed by:

Edward Malindzak, M.Sc.
Senior Fisheries Biologist

Reviewed by:

Dan Reeves, M.Sc.
Project Biologist

9. Literature Cited

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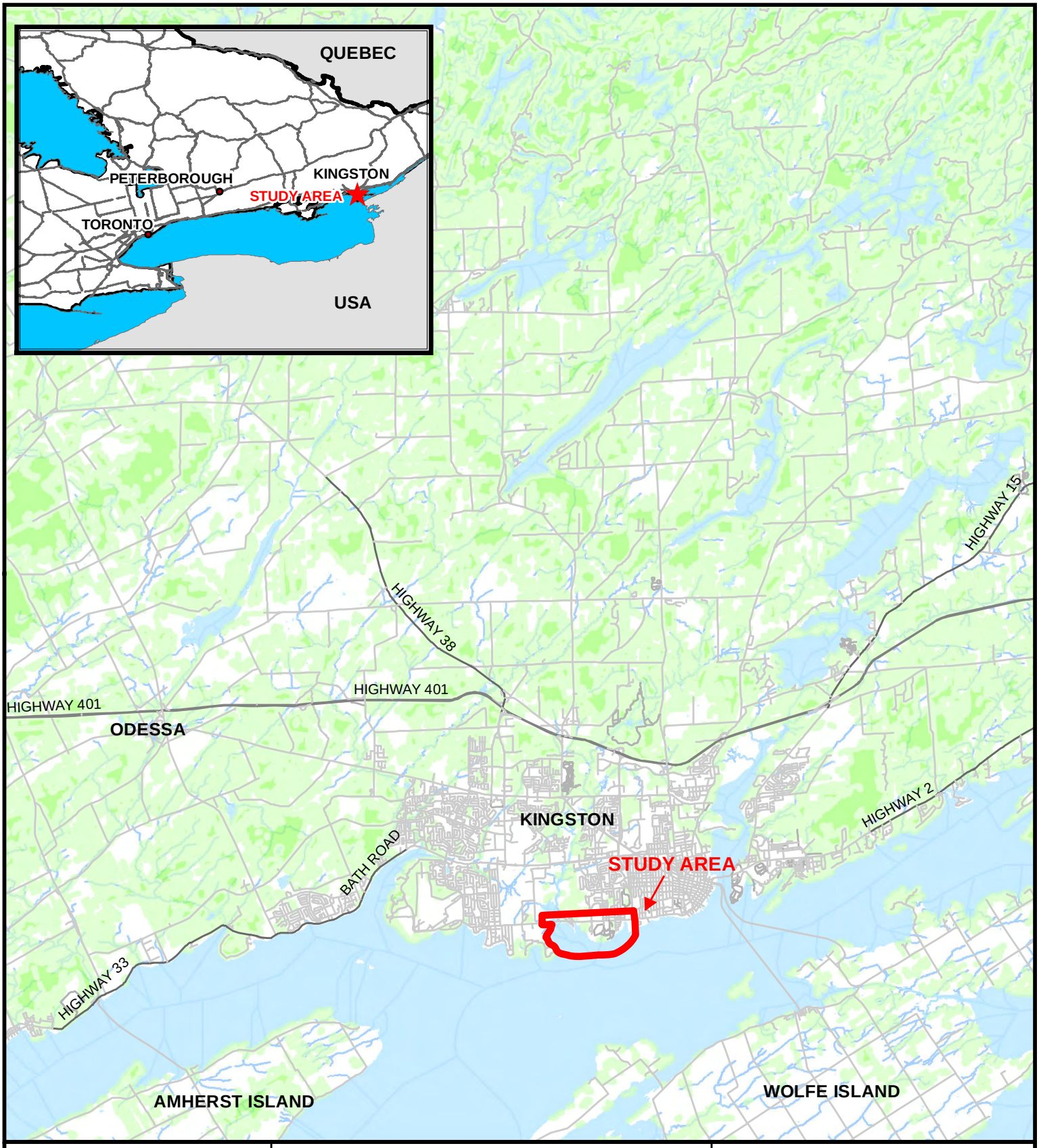
Figures



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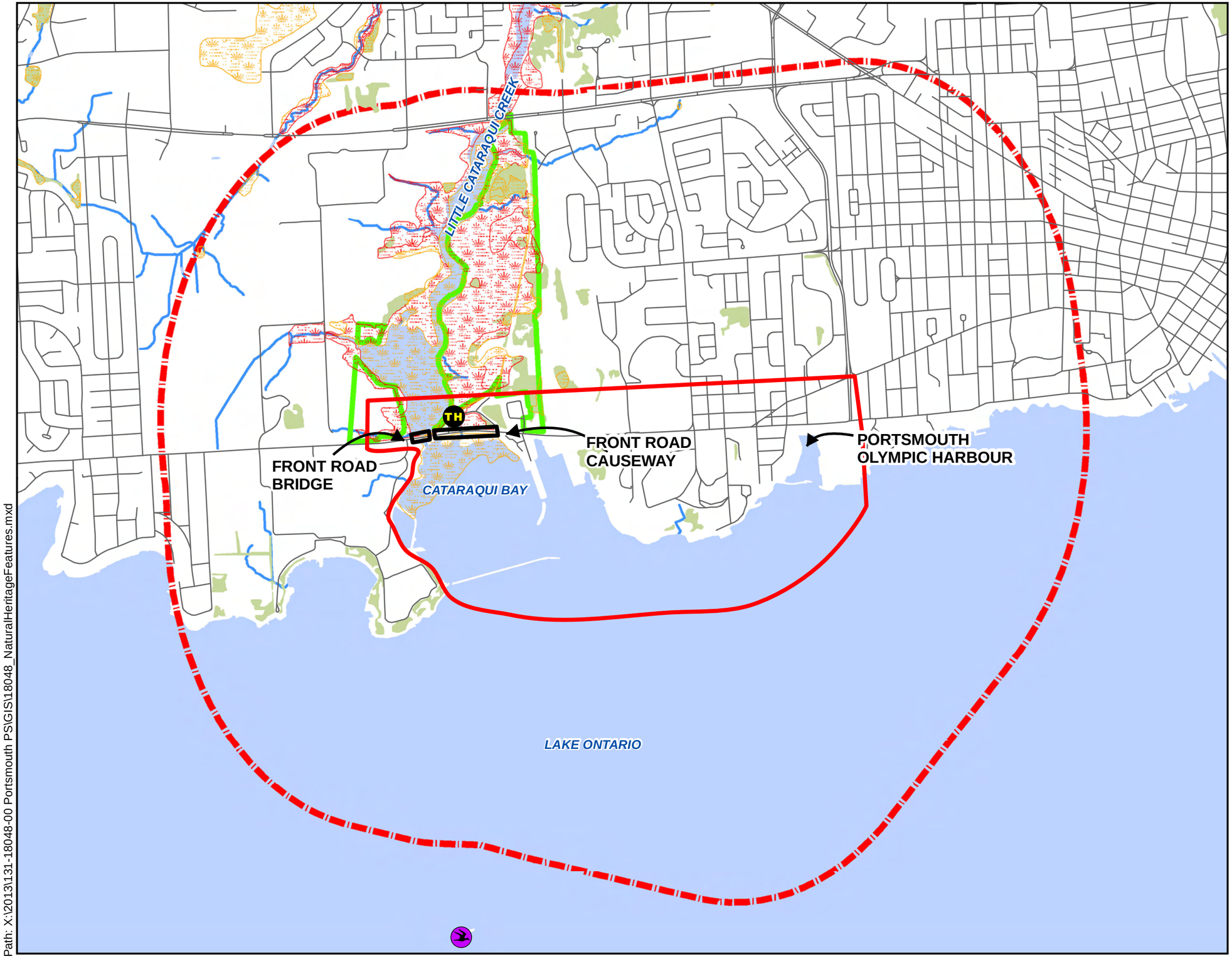
PORTSMOUTH PUMPING STATION
FLOW DIRECTION & FRONT ROAD
TRUNK WATERMAIN INTERCONNECTION
MUNICIPAL CLASS ENVIRONMENTAL
ASSESSMENT

KEY PLAN

scale	1:175,000
date	SEPTEMBER 2013
drawn by	CD
job no.	131-18048-00

FIGURE 1

X:\2011\111-55591-00\GIS\2010Report\Fig1KeyPlan.mxd



CLIENT

Utilities Kingston

LEGEND

- STUDY AREA
- 2 KM SITE BUFFER
- ROAD
- WATERCOURSE
- WATER BODY
- PROVINCIALLY SIGNIFICANT WETLAND
- UNEVALUATED WETLAND
- WOODED AREA
- MARSHLAND CONSERVATION AREA
- NESTING SITE/COLONY (HERRING GULL & CORMORANT)
- TH — ONTARIO TRAIL NETWORK - TRAIL HEAD

N

PROJECT

PORTSMOUTH PUMPING STATION FLOW DIRECTION &FRONT ROAD TRUNK WATERMAIN INTERCONNECTION MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TITLE & FIGURE NO.

NATURAL HERITAGE FEATURE

FIGURE 2

520 260 0 520 Meters

1:24,000

NAD1983 ZONE 18

Sources:
LANDS INFORMATION ONTARIO

Drawn By:
C.Delaney

SEPTEMBER 2013 131-18048-00

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294 RINK STREET
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Path: X:\2013\131-18048-00 Portsmouth PS\GIS\18048_NaturalHeritageFeatures.mxd

Path: X:\2013\131-18048-00 Portsmouth PS\GIS\18048_Existing Conditions.mxd

CLIENT Utilities Kingston

LEGEND

- STUDY AREA
- WATERCOURSE- PERMANENT
- WATERCOURSE - INTERMITTENT
- WATER BODY
- LITTLE CATARAQUI CREEK COMPLEX PROVINCIALLY SIGNIFICANT WETLAND
- MARSHLAND CONSERVATION AREA
- 1 AQUATIC SAMPLING LOCATION

ECOLOGICAL LAND CLASSIFICATION

- CATTAIL MINERAL SHALLOW MARSH TYPE (MASM1-1)
- FRESH- MOIST DECIDUOUS WOODLAND ECOSITE (WODM5)
- AQUATIC SYSTEM (AQ)
- CONSTRUCTED (CV)

SPECIES AT RISK OCCURENCE

- BARN SWALLOW
- EXTENT OF POTENTIAL NEST LOCATION

PROJECT

PORTSMOUTH PUMPING STATION FLOW DIRECTION &FRONT ROAD TRUNK WATERMAIN INTERCONNECTION MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TITLE & FIGURE NO.

EXISTING CONDITIONS

FIGURE 3

210 105 0 210 Meters

1:10,000

NAD1983 ZONE 18

Sources:
LANDS INFORMATION ONTARIO

Drawn By:
C.Delaney

SEPTEMBER 2013 131-18048-00

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Appendix A

Forcemain Route Options

LEGEND:

WTP	SEWAGE TREATMENT PLANT
PS	PUMPING STATION
	EXISTING SANITARY SEWERS
	EXISTING FORCEMAIN
	EXISTING TRUNK SEWER
	ROUTE OPTION 1 BAIDEN STREET
	ROUTE OPTION 2 KENNEDY STREET
	ROUTE OPTION 3 KING STREET WEST
	PORTSMOUTH SERVICE AREA
	ADDTIONAL INTENSIFICATION
	COMBINED SEWER SERVICE AREA

WSP

WSP Canada Inc.
201-1224 Gardiners Rd,
Kingston, ON,
K7P 0G2

TITLE: FORCEMAIN ROUTE OPTIONS

PROJECT: 131-18048-00

DATE: JANUARY, 2014

SCALE: 1:5,000

0 170 340 680 Meters

Portsmouth Pumping Station Flow Direction and Front Road Trunk Watermain Interconnection Environmental Assessment

Utilities Kingston

Utitiltes Kingston
P.O. Box 790,
Kingston, ON,
K7L 4X7

Appendix B

Record of Communication

Rodo, Jaclyn

From: Spang, Elizabeth (MNR) <Elizabeth.Spang@ontario.ca>
Sent: Friday, July 26, 2013 3:09 PM
To: Jaclyn Rodo
Subject: RE: City of Kingston EA - Information Request, MNR File No.13-KING-KNG-EAE-1668
Attachments: Fish Species List for Little Cataraqui Creek.doc

Hi Jaclyn:

MNR Peterborough District has reviewed your information request regarding the Class EA for a preliminary and detailed design of the Front Road Watermain and Portsmouth Forcemain within the City of Kingston. We provide the following information for your consideration:

MNR Data and Information:

We would like to inform you that MNR's natural heritage and natural resources data and information for the study area can be obtained through the Land Information Ontario Warehouse (LIOW) through the Ministry's Land Information Ontario (LIO) website at: http://www.mnr.gov.on.ca/en/Business/LIO/2ColumnSubPage/STDPROD_068994.html.
A data sharing agreement is required to access data within the LIO database. The following link provides information about obtaining an agreement: http://www.mnr.gov.on.ca/en/Business/LIO/2ColumnSubPage/STEL02_167959.html

You can also obtain Species at Risk occurrence information on our Natural Heritage Information Centre website: http://nhic.mnr.gov.on.ca/. Please note that Biodiversity Explorer is scheduled for permanent shutdown sometime in 2013. To view the 1 km screening squares after the shutdown, please visit LIO Make a Map at: http://www.mnr.gov.on.ca/en/Business/LIO/2ColumnSubPage/STDPROD_068999.html, or contact the District.
In addition, the Species at Risk in Ontario (SARO) List can be obtained at: http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_080230_e.htm

We recommend that you use the above-noted sources of information during the review of your project proposal. MNR may provide additional information and technical advice if details of the proposed location(s) and design(s) of the proposed works are circulated to our office.

Wetlands
The project area traverses the Little Cataraqui Creek Complex Provincially Significant Wetland (PSW).

Fisheries
Our records show that Little Cataraqui Creek is warmwater (no in-water work between April 1st-June 30th) and may have some coldwater species that migrate up in the fall and spring to spawn. A fish species list for Little Cataraqui Creek is attached. We do not have any fisheries information for Cataraqui Bay or the watercourse running north of Front Road on the west side of the project area.

* Please contact the Department of Fisheries and Oceans/local Conservation Authority for any approvals that may be required and/or recommendations on any sediment/erosion control measures that may be required to be installed prior/during/after construction

Species at Risk
A review of our available data records and our best available information indicates that there are occurrences of Snapping Turtle (Special Concern), Bobolink (Threatened), Barn Swallow (Threatened), Black Tern (Special Concern), Red-headed Woodpecker (Special Concern), and Lake Sturgeon (Threatened) within 1 km of your proposed works. There are occurrences of Gray Ratsnake (Threatened), Milksnake (Special Concern), Peregrine Falcon (Special Concern), and Least Bittern (Threatened) within 5 km of your proposed work. Although no other threatened or endangered species or their habitat have been documented in the area of the proposed project, these features may be present and this list should not be considered complete.

Species listed as endangered or threatened on the Species at Risk in Ontario (SARO) List are protected under the Endangered Species Act, 2007 (ESA). Section 9(1) of the ESA prohibits a person from killing, harming, harassing, capturing or taking a member of a species listed as endangered, threatened or extirpated on the SARO list. Section 10(1)

of the ESA prohibits the damage or destruction of habitat of a species listed as endangered or threatened on the SARO list. In order to ensure that the project activities do not impact species at risk or contravene the ESA, we recommend that the planned works be fully evaluated with respect to their potential impacts to species at risk.

Should any species at risk or their habitat be potentially impacted by on site activities, MNR should be contacted immediately and operations should be modified to avoid any negative impacts to species at risk or their habitat until further discussions with MNR can occur regarding opportunities for mitigation. If you have any questions regarding species at risk, contact the Species at Risk Biologist at the Peterborough District MNR office at 705-755-3104.

The following are some general notes:

Workers must be vigilant and check the work areas for the presence of these and other Species at Risk. If Species at Risk are encountered, work must be temporarily suspended until the animal is out of harm's way. Workers should report any Species at Risk observations (including photographs and coordinates, if possible) to the Peterborough District Species at Risk Biologist immediately at (705) 755-3105. Fact sheets for each species listed above should be provided to the construction crew before the project begins. Species at Risk information and Fact Sheets can be found at: http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/276722.html.

Birds: Workers must be vigilant and check work areas for the presence of breeding birds and nests containing eggs and/or young. If breeding birds and/or nests are encountered, works should not continue in the location of the nest until after July 1 (or as soon as it has been determined that that the young have left the nest). Please note that the breeding bird season in the subject area extends from May 1 to June 30. Therefore, works should commence after June 30 whenever possible.
Specific Barn Swallow Information: Barn Swallow nests may be present under bridges and/or culverts. Therefore, the underside of these structures should be assessed for Barn Swallow nests before proceeding. If there are no nests present (or if nests are present, but not being used at the time of construction), a contravention of the ESA is unlikely. However, if nests are present and being utilized, construction should not begin until after August 15 of any year. Understanding that some projects need to occur before or during nesting season, the bridge should be blocked prior to nesting season (April 15 – August 15) using netting or tarping in order to prevent Barn Swallows from nesting under the bridge (if there is evidence of past nesting activity). As of July 1, 2013, new regulatory provisions are in place for Barn Swallow nests on built structures. Please see Alter a structure – habitat for barn swallow for more information.

Turtles and Snakes: Workers must be vigilant and check work areas for the presence of turtles or snakes. If snakes or turtles are encountered, work must be temporarily suspended until the animal is out of harm's way. Please note that the turtle nesting season in the subject area extends from May 15 to June 30. Therefore, works should commence after June 30 whenever possible and no in-water works should occur from October 15th to April 15th of any year as turtles could be hibernating. If work must occur outside of these suggested dates, exclusionary fencing should be erected in areas where turtles will be impacted, i.e. wetlands, turtle crossings and nesting areas. The fencing should extend 10-50 metres beyond the end point and be bounded and angled to deter turtles from crossing the road i.e. angled back towards the wetland. A qualified biologist or contactor trained in species at risk identification shall conduct a site visit prior to work commencing to ensure no species at risk will be harmed during construction activities. This should occur daily.

General Information Regarding MNR approvals:

Lakes & Rivers Improvement Act
Approval may be required under the Lakes and Rivers Improvement Act (LRIA) if you are planning to construct, alter, repair or decommission a dam. If you have any questions regarding the LRIA, please contact please contact the Senior Lands Specialist at our Peterborough District office at 705-755-3305.

Public Lands Act
Except for federal canals and harbours, the beds of most lakes and streams are public land in Ontario. Please note that you may require a Work Permit under the *Public Lands Act* (PLA) if you are proposing work in water or near shore (shoreline) areas below the spring high water mark. If you have any questions regarding the PLA, please contact please contact the Senior Lands Specialist at our Peterborough District office at 705-755-3305.

Other Approvals
It is the responsibility of the proponent to acquire all other necessary approvals from any other municipal, provincial or federal authority under other legislation. We recommend that you contact your local Conservation Authority, Department of Fisheries and Oceans, Ministry of the Environment, Ministry of Tourism and Culture, etc.

Please reference the above noted MNR file no. for future correspondence. **If** you have any specific questions regarding natural heritage and natural resource features as they relate to the study area and project proposal, please do not hesitate to contact the me.

Best regards,

Liz Spang, M.Pl

A/District Planner
Peterborough District
Ontario Ministry of Natural Resources
300 Water Street, 1st Floor South
Peterborough, ON K9J 8M5
Tel: (705) 755-3294
Fax: (705) 755-3125
Email: Elizabeth.Spang@ontario.ca

From: Jaclyn Rodo [mailto:Jaclyn.Rodo@genivar.com]
Sent: June-06-13 10:25 AM
To: Spang, Elizabeth (MNR)
Cc: Chung, Tammy (MNR)
Subject: FW: City of Kingston EA - Information Request

Hello Elizabeth,

I understand Tammy is on maternity leave!! Congrats, Tammy!

Elizabeth, can you please respond to my email below at your earliest convenience.

Thanks,

GENIVAR

Jaclyn Rodo, B.Sc., EPt.
Biologist

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Please consider the environment before printing...

From: Jaclyn Rodo
Sent: Thursday, June 06, 2013 10:22 AM
To: tammy.chung@ontario.ca
Subject: City of Kingston EA - Information Request

Hi Tammy,

We have been retained by Utilities Kingston to complete a Class EA study for a preliminary and detailed design of the Front Road Watermain and Portsmouth Forcemain within the City of Kingston, specifically for the study area found here: https://maps.google.ca/maps/ms?msid=211010729012633324178.0004de694f203462dbff5&msa=0&ll=44.216232,-76.531363&spn=0.019224,0.052314

Can you please provide available background information for the site, including information related to Natural Heritage Features, Species at Risk or other developmental constraints.

Also, we would like available information regarding aquatic habitat within or surrounding Cataraqui Bay such as habitat (spawning & nursery) mapping and species occurrence within this area.

If you have any questions, please do not hesitate to contact me.

Thanks,

GENIVAR

Jaclyn Rodo, B.Sc., EPt.
Biologist

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Fish Species List for Little Cataraqui Creek

Source: Stringer's Environmental Services and Ecotec Environmental Consulting (2011)

Central Mudminnow
Northern Redbelly Dace
Creek Chub
Banded Killifish
Pumpkinseed
Smallmouth Bass
Rock Bass
Brook Stickleback
Fathead Minnow
Finescale Dace
Bluegill
Yellow Perch
Largemouth Bass
Brown Bullhead

Source: Bowfin Environmental Consulting (2008)

Northern Pike
Golden Shiner
Pumpkinseed
Yellow Perch
Smallmouth Bass
Central Mudminnow
Brown Bullhead
Largemouth Bass
Banded Killifish

Source: Bowfin Environmental Consulting (2007)

Brown Bullhead
Pumpkinseed
Largemouth Bass
Golden Shiner
Banded Killifish
Bluegill
Yellow Perch
Central Mudminnow
Northern Pike
Johnny Darter

Source: Bowfin Environmental Consulting (2006)

Brown Bullhead
Bluegill
Yellow Perch
Pumpkinseed
Largemouth Bass
Banded Killifish

Source: Bowfin Environmental Consulting (2005)

Northern Pike
Pumpkinseed
Black Crappie
Brown Bullhead
Largemouth Bass
Yellow Perch

Source: Ecological Services (2004)

Pumpkinseed
Central Mudminnow
Largemouth Bass
Bluegill
Brown Bullhead

Rodo, Jaclyn

From: Michael Dakin <mdakin@cataraquiregion.on.ca>
Sent: Wednesday, October 09, 2013 4:35 PM
To: Jaclyn Rodo
Cc: Edward Malindzak
Subject: RE: Front Road Trunk Watermain Interconnection

Jaclyn,

My apologies for not following up sooner. We've had a large volume of Class-EA related requests come in lately.

I have requested Amanda Mallory, our Geomatics Technician, to send a Draft data sharing agreement in order to facilitate the data transfer for the flood plain and PSW mapping layers. Could you please follow-up with Amanda by providing a map of the locations of interest (keep in mind data pricing is on a per tile basis for LiDAR based contours – so the more precise you can be the lower the cost).

Also, I have requested follow-up on the fisheries and past studies component. I myself am not familiar with recent EA/EIS work in the project area but there was some work done on a wetland/fisheries compensation project near the Trailhead Place subdivision upstream on Little Cataraqui Creek, perhaps in the 1990s. I will look into this further.

Let me know if you have any other questions in the meantime.

Best regards,

Mike

Michael Dakin
Resource Planner
Cataraqui Region Conservation Authority
T: 613-546-4228 x 228
F: 613-547-6474
mdakin@cataraquiregion.on.ca

From: Jaclyn Rodo [mailto:Jaclyn.Rodo@genivar.com]
Sent: Tuesday, September 24, 2013 9:04 AM
To: Michael Dakin
Cc: beaubiah@cataraquiregion.on.ca; Edward Malindzak
Subject: RE: Front Road Trunk Watermain Interconnection

Hi Mike,

I have not heard back from Cataraqui CA related to my last email (below). Can you please respond as soon as possible.

Thank you,

GENIVAR

Jaclyn Rodo, B.Sc., EPt.
Biologist

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---

From: Jaclyn Rodo
Sent: Thursday, September 05, 2013 11:41 AM
To: 'Michael Dakin'
Cc: beaubiah@cataraquiregion.on.ca; Edward Malindzak
Subject: RE: Front Road Trunk Watermain Interconnection

Hello Mike,

Flood plain & PSW mapping would be helpful – please have your geomatics staff follow-up.

I have been in touch with MNR regarding the project. I am looking for information that the MNR may not have available, such as historical studies completed (Class EA, EIS Reports, etc.), watershed plans, fisheries management plans, etc. I am most interested in fish occurrence and habitat information for Cataraqui Bay, Little Cataraqui Creek, Kingston/Lake Ontario shoreline and the Portsmouth Olympic Park Harbour.

If you can provide this aquatic information, that would be a great help.

Thanks,

GENIVAR

Jaclyn Rodo, B.Sc., EPt.
Biologist

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---

From: Michael Dakin [mailto:mdakin@cataraquiregion.on.ca]
Sent: Thursday, September 05, 2013 10:21 AM
To: Jaclyn Rodo
Cc: beaubiah@cataraquiregion.on.ca; Edward Malindzak
Subject: RE: Front Road Trunk Watermain Interconnection

Jaclyn,

We can provide flood plain and PSW mapping data through a data sharing agreement if required. Otherwise, we generally leave the SAR screening to the MNR.

Let me know if you'd like to proceed with the data sharing agreement and I'll have our geomatics staff follow-up.

Regards,

Mike

Michael Dakin
Resource Planner
Cataraqui Region Conservation Authority
T: 613-546-4228 x 228
F: 613-547-6474
mdakin@cataraquiregion.on.ca

From: Jaclyn Rodo [mailto:Jaclyn.Rodo@genivar.com]
Sent: Wednesday, September 04, 2013 3:38 PM
To: Michael Dakin
Cc: beaubiah@cataraquiregion.on.ca; Edward Malindzak
Subject: FW: Front Road Trunk Watermain Interconnection

Hi Michael,

Have you had an opportunity to review my information request (see below)?

If you require additional information, please let me know.

Jaclyn Rodo, B.Sc., EPt.
Biologist

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T 705-743-6850 x257 | F 705-743-6854 | C 705-991-1881 | www.genivar.com

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From: Tom Beaubiah [mailto:beaubiah@cataraquiregion.on.ca]
Sent: Friday, August 23, 2013 9:30 AM
To: Jaclyn Rodo
Subject: RE: Front Road Trunk Watermain Interconnection

I believe Mike Dakin has been reviewing this file, I will check with him on Monday and confirm the status.

Sincerely,

Tom Beaubiah
Biologist
Cataraqui Region Conservation Authority
P.O. Box 160 – 1641 Perth Road
Glenburnie, Ontario
K0H 1S0
Phone: 613-546-4228 ext 240
Fax: 613-547-6474

Webiste: www.cataraquiregion.on.ca

From: Jaclyn Rodo [mailto:Jaclyn.Rodo@genivar.com]
Sent: Thursday, August 22, 2013 3:36 PM
To: beaubiah@cataraquiregion.on.ca
Cc: CRCA
Subject: RE: Front Road Trunk Watermain Interconnection

Hi Tom,

Have you had an opportunity to review my information request?

Please do not hesitate to contact me, if you have any questions.

Regards,

GENIVAR

Jaclyn Rodo, B.Sc., EPt.
Biologist

GENIVAR Inc.
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From: Jaclyn Rodo
Sent: Thursday, July 25, 2013 3:09 PM
To: 'beaubiah@cataraquiregion.on.ca'
Cc: 'CRCA'
Subject: RE: Front Road Trunk Watermain Interconnection

Hi Tom,

I sent an email to CCRA's general email to obtain information for our study and have not yet received a response. At your earliest convenience, can you please respond to my email request, below.

If you have any questions, please do not hesitate to contact me.

I appreciate it,

GENIVAR

Jaclyn Rodo, B.Sc., EPt.
Biologist

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From: Jaclyn Rodo
Sent: Tuesday, July 02, 2013 2:29 PM
To: 'CRCA'
Subject: Front Road Trunk Watermain Interconnection

Hi Diane,

I apologize, it is Raisin River CA that uses the information request method…

We have been retained by Utilities Kingston for both the preliminary and detailed design study for the Front Road Trunk Watermain Interconnection, within the City of Kingston. At this time, we are seeking background information from CRCA, including developmental constraints located within and adjacent to the study area, known fish and fish habitat within Cataraqui Bay, and other available information pertaining to the study area that CRCA is able to provide.

Please find the Study Area
here: https://maps.google.ca/maps/ms?msid=211010729012633324178.0004de694f203462dbff5&msa=0&ll=44.220538,-76.531062&spn=0.019222,0.052314

I have requested Species at Risk information from MNR; however, if you have any information pertaining to Species at Risk within or adjacent to the Study Area, it would be greatly appreciated.

Thanks,

GENIVAR

Jaclyn Rodo, B.Sc., EPt.
Biologist

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From: CRCA [mailto:CRCA@cataraquiregion.on.ca]
Sent: Thursday, June 06, 2013 10:44 AM
To: Jaclyn Rodo
Subject: RE: Information Request Form

Hello Jaclyn, what do you mean by an "information request form". If you are looking for info concerning property, where is the property?

Thanks, Dianne

Dianne Doyle
Reception/Clerk
Cataraqui Region Conservation Authority
1641 Perth Road, PO Box 160
Glenburnie ON K0H 1S0
Phone:(613) 546-4228 ext 220/221
Toll free for Area 613 only: 1-877-956-2722
Fax: (613)547-6474

Email: crca@cataraquiregion.on.ca
Email: ddoyle@cataraquiregion.on.ca

Visit us on the web: www.cataraquiregion.on.ca
www.cleanwatercataraqui.ca
Cat Trail Website: www.cataraquitrail.ca

Follow us on & 

Please think of the environment before printing this e-mail.

From: Jaclyn Rodo [mailto:Jaclyn.Rodo@genivar.com]
Sent: Thursday, June 06, 2013 9:51 AM
To: crca@cataraquiregion.on.ca
Subject: Information Request Form

Good morning,

Can you please send me an information request form at your earliest convenience. Who shall I submit the completed form to?

Thanks,

Jaclyn Rodo, B.Sc., EPt.
Biologist

GENIVAR Inc.
294 Rink Street Suite 103, Peterborough, ON K9J 2K2
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Please consider the environment before printing...

Appendix C

Flora & Fauna List

Species Lists

Table 1: Flora

	Common Name	Scientific Name	S-Rank	SARO	SARA
Trees & Shrubs	Black Walnut	*Juglans nigra*	S4		
	Box Elder	*Acer negundo*	S5		
	Buckthorn	*Rhamnus cathartica*	SNA		
	Eastern White Pine	*Pinus strobus*	S5		
	Great Angelica	*Angelica atropurpurea*	S5		
	Green Ash	*Fraxinus pennsylvanica*	S5		
	Northern Red Oak	*Quercus rubra*	S5		
	Norway Spruce	*Picea abies*	SNA		
	Paper Birch	*Betula papyrifera*	S5		
	Red-osier Dogwood	*Cornus sericea*	S5		
	Silver Maple	Acer saccharinum	S5		
	Staghorn Sumac	*Rhus typhina*	S5		
	Sugar Maple	*Acer saccharum var. saccharum*	S5		
	Trembling Aspen	*Populus tremuloides*	S5		
	White Ash	*Fraxinus americana*	S4?		
	White Spruce	*Picea glauca*	S5		
	White Willow	*Salix alba*	SNA		
Herbaceous Plants, Grasses, Ferns and Allies	Barren Strawberry	*Geum fragarioides*	S5		
	Birds-foot Trefoil	*Lotus corniculatus*	SNA		
	Blueflag	*Iris versicolor*	S5		
	Broad-leaf Cattail	Typha latifolia	S5		
	Broad-leaved Enchanter's Nightshade	*Circaea canadensis*	S5		
	Butter-and-eggs	*Linaria vulgaris*	SNA		
	Canada Goldenrod	*Solidago canadensis var. canadensis*	S5		
	Common Goatsbeard	*Aruncus dioicus*	SNA		
	Common Viper's-bugloss	*Echium vulgare*	SNA		
	Dandelion	*Taraxacum erythrospermum*	SNA		
	European Reed	*Phragmites australis ssp. australis*	SNA		

	Evening Primrose	*Oenothera oakesiana*	S4?		
	Field Bindweed	*Convolvulus arvensis*	SNA		
	Fleabane	*Conyza canadensis*	S5		
	Great Mullein	*Verbascum thapsus*	SNA		
	Greater Burdock	*Arctium lappa*	SNA		
	Kansas Milkweed	*Asclepias syriaca*	S5		
	Lesser Duckweed	*Lemna minor*	S5		
	Maiden's Tears	*Silene vulgaris*	SNA		
	Marsh Cinquefoil	*Comarum palustre*	S5		
	Milk-vetch	*Astragalus cicer*	SNA		
	New England Aster	*Symphyotrichum novae-angliae*	S5		
	Nipple-seed Plantain	*Plantago major*	S5		
	Oxeye Daisy	*Leucanthemum vulgare*	SNA		
	Pineapple-weed Chamomile	*Matricaria discoidea*	SNA		
	Red Clover	*Trifolium pratense*	SNA		
	Reed Canary Grass	*Phalaris arundinacea*	S5		
	Sedge	*Carex spp.*			
	Showy Tick-trefoil	*Desmodium canadense*	S4		
	Spotted Jewel-weed	*Impatiens capensis*	S5		
	Summer Grape	*Vitis aestivalis*	S4		
	Tall Butter-cup	*Ranunculus acris*	SNA		
	Upland Wild Timothy	*Muhlenbergia racemosa*	S4		
	Virginia Creeper	*Parthenocissus quinquefolia*	S4?		
	Virginia Strawberry	*Fragaria virginiana*	S5		
	White Sweet Clover	*Melilotus albus*	SNA		
	Wild Carrot	*Daucus carota*	SNA		
	Wild Parsnip	*Pastinaca sativa*	SNA		
	Yarrow	*Achillea millefolium*	S5		

Table 2: Fauna

	Common Name	Scientific Name	S-Rank	SARO	SARA
Birds	American Crow	*Corvus brachyrhynchos*	S5B		
	American Robin	*Turdus migratorius*	S5B		
	Barn Swallow	***Hirundo rustica***	**S4B**	**THR**	**THR**
	Black-capped Chickadee	*Poecile atricapillus*	S5		
	Canada Goose	*Branta canadensis*	S5		
	Cedar Waxwing	*Bombycilla cedrorum*	S5B		

	Chipping Sparrow	*Spizella passerina*	S5B		
	Common Loon	*Gavia immer*	S5B,S5N	NAR	NAR
	Common Tern	Sterna hirundo	S4B	NAR	NAR
	Common Yellowthroat	*Geothlypis trichas*	S5B		
	Double-crested Cormorant	*Phalacrocorax auritus*	S5B	NAR	NAR
	Eastern Kingbird	*Tyrannus tyrannus*	S4B		
	European Starling	*Sturnus vulgaris*	SNA		
	Gray Catbird	*Dumetella carolinensis*	S4B		
	Great Blue Heron	*Ardea herodias*	S4		
	Hairy Woodpecker	*Picoides villosus*	S5		
	Herring Gull	*Larus argentatus*	S5B,S5N		
	House Wren	*Troglodytes aedon*	S5B		
	Killdeer	*Charadrius vociferus*	S5B,S5N		
	Magnolia Warbler	*Dendroica magnolia*	S5B		
	Mallard	*Anas platyrhynchos*	S5		
	Marsh Wren	*Cistothorus palustris*	S4B		
	Mourning Dove	*Zenaida macroura*	S5		
	Northern Flicker	*Colaptes auratus*	S4B		
	Orange-crowned Warbler	*Vermivora celata*	S4B		
	Osprey	*Pandion haliaetus*	S5B		
	Red-winged Blackbird	*Agelaius phoeniceus*	S4		
	Ring-billed Gull	*Larus delawarensis*	S5B,S4N		
	Rock Pigeon	*Columba livia*	SNA		
	Song Sparrow	*Melospiza melodia*	S5B		
	Swamp Sparrow	*Melospiza georgiana*	S5B		
	Yellow Warbler	*Dendroica petechia*	S5B		
Herpetofauna	Common Watersnake	*Nerodia sipedon sipedon*	S5	NAR	NAR
	Green Frog	*Rana clamitans*	S5		
	Snapping Turtle	***Chelydra serpentina***	**S3**	**SC**	**SC**
Mammals	Eastern Gray Squirrel	*Sciurus carolinensis*	S5		
Fish	Common Carp	*Cyprinus carpio*	SNA		
	Darter	*Etheostoma spp.*			
	Round Goby	*Neogobius melanostomus*	SNA		

Appendix D

Site Photographs

Site Photos

Photo 1. Front Road bridge, facing north. Photograph taken: July 5, 2013.

Photo 2. Front Road, facing north towards Marshlands Conservation Area. Photograph take: July 30, 2013.

Site Photos

Photo 3. South of Front Road bridge, facing north. Photograph take: July 30, 2013.

Photo 4. North of Front Road bridge, facing west. Photograph take: July 30, 2013.

Site Photos

Photo 5. South of Front Road causeway, facing east. Photograph take: July 30, 2013.

Photo 6. South of Marshlands Conservation Area and Front Road, facing west. Photograph take: July 30, 2013.

Site Photos

Photo 7. South of Portsmouth Olympic Harbour, facing north. Photo taken: August 23, 2013.

Photo 8. South of Marshlands Conservation Area and Front Road, facing north. Photo taken: July 30, 2013.