AECOM

# C1. Natural Environmental Report

Note: The assessment of the Natural Environment for the study area is documented in two reports.

The October 2008 Report pertains to the original study limits which extended from Queen Street northerly to Mayfield Road.

The June 2011 Report pertains to the extended study area from Mayfield Road northerly approximately 2 km.

# SITE REVIEW REPORT

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**To:** Rob Shamess, Project Manager, AECOM Mississauga

**From:** Rudi Warmé, Biologist

**Date:** October 25, 2008 (Revised August, 2011)

**Re:** **Class Environmental Assessment Study for Dixie Road (Regional Road 4) from Mayfield Road Southerly to Queen Street, Brampton, Region of Peel**
**Natural Environment Review**

## Introduction and Background

The Region of Peel is presently undertaking a Schedule "C" Environmental Assessment under the Province's Municipal Class EA process to establish a plan to address roadway improvements along Regional Road 4/Dixie Road extending from Mayfield Road southerly for approximately 7 km to Queen Street in the City of Brampton (see Study Corridor figure in Attachments). Alternatives will be reviewed and evaluated based on a number of criteria including engineering and public safety as well as economic, social and natural environment factors.

The purpose of this report is to identify and document, through field investigation and review of existing background information, the current conditions of aquatic and terrestrial environment that encompass and surround the Dixie Road Corridor. A preliminary assessment of potential impacts follows that assumes there will be some alterations to the site as a result of roadway improvement activities that will include an ultimate widening to six lanes and possible addition of turning lanes at intersections.

Drainage from and dewatering of excavations and work areas will result in impacts to surrounding areas and in particular the receiving waterbodies. There is a potential for sediment transport to and deposition in the nearby Etobicoke Creek tributary channels that parallel and cross the study area at various locations within the study limits. Neither the Ministry of Natural Resources nor the Toronto and Region Conservation Authority were able to provide fisheries information for these intermittent headwater tributaries. Electroshocking was subsequently undertaken at several locations in order to identify any resident fish communities. There are no wetlands or significant woodlots within or adjacent to the study corridor.

The potential for cumulative effects must be considered in preparing for project implementation.

## Study Corridor Description

The study area is primarily urban residential with the exception of the northerly 2 km of adjacent lands, which remain mostly as farmland under cultivation. The Dixie Road corridor is situated at the boundary of the South Slope and Peel Plain Physiographic Regions (Chapman and Putnam, 1984). The lands are typically flat till plain characterized by well drained, clay soils.

Several headwater tributaries of Etobicoke Creek cross the area from northwest to southeast (see **Figure 1**, Location Plan in **Attachment 1** - Drawings). Under normal conditions many of these upper tributaries would be dry through the summer months; however, in 2008 the summer was very wet and water was present at several roadway crossings at the time of the field investigations. Natural environment features along the roadway corridor were identified and reviewed on an August 8, 2008 reconnaissance visit and again on September 10, at which time detailed fish surveys were undertaken at selected Etobicoke Creek tributary locations. A Fish Collection Licence was obtained from the Ministry of Natural Resources. A detailed photographic diary of the August field visit is contained as **Attachment 2** of this report.

A detail of the study corridor can be viewed on **Figure 2** in Attachment 1. Regional Road 4/Dixie Road extends south from Mayfield Road as a two lane, gravel shouldered roadway with ditches and cultivated farmland beyond on both sides. Two small tributaries of Etobicoke Creek separated by approximately 200 m, neither of which flowed within formal channels cross Dixie Road from northwest to southeast above Countryside Drive. On the west side ditches drain into 0.6 m diameter (north crossing) and 1.2 m diameter (south crossing) CSPs under Dixie Road. Both were flowing on the day of the August site visit; however, neither are considered fish habitat since they proceed southeast across the cultivated fields and are dry for most of the summer. On September 10 they were dry. There was no riparian vegetation zone associated with either of the tributary channels within the study corridor. Water simply runs over the vegetation when flowing. Although surrounding vegetation is old field herbaceous growth along the roadsides there were occasional mature tree specimens including white elm, silver maple, and crack willow frequently associated with farm and rural residential buildings along the roadway.

At Countryside the roadway becomes a four lane urban section with residences and town homes extending south. Trees have been planted beyond the sidewalks on both sides and appear to be primarily young white ash. At Octillo Boulevard additional tributaries of Etobicoke Creek approach the roadway from the northeast. There has been extensive recent realignment and restoration of tributary channels (see **Figure 3**, which illustrates the watercourse crossings on Dixie Road north of Bovaird Drive and the various watercourse diversions that have occurred locally) approaching to within 25 m east of the roadway, related to adjacent residential development. The water was extremely turbid but forage fish were observed in the channel in the August site visit. Subsequent electrofishing in September, however, yielded no fish after extensive sampling efforts. Water had cleared significantly of turbidity by this time but the channel bottom was muck covered and quickly

clouded the surrounding waters. Downstream of this disturbance area is a 4 m by 1 m concrete box culvert under Dixie Road that conveys drainage from an easterly tributary to a broad, cattail lined channel, often completely filled with emergents, 25 m west of Dixie Road. Widenings of Dixie Road in this vicinity could impact fish habitats locally if extensions to this culvert are required, although the existing culvert length may accommodate a roadway widening. The main channel continues south through a golf course to Sandalwood Parkway. Fish sampling below the bridge in September did yield a dozen brook stickleback after some considerable effort in the turbid waters. Several westerly tributaries, including flows from Heart Lake located 1 km upstream, join the cattail dominated channel that continues south and parallel to Dixie Road to where it enters a large reservoir at the northwest quadrant of Bovaird Drive and Dixie Road with a formal water level control structure located just northeast of the intersection. Water in the upstream channel remained turbid until it reached the reservoir. Another tributary enters the reservoir from the east just above Bovaird; however, the culvert location could not be determined in the field.

A large twin 4 m by 2 m concrete box culvert conveys flows from the reservoir southeast under the intersection to Manitou Park in the southeast quadrant, where parkland containing the channel extends south some distance adjacent to Dixie Road. This section of waterway is considered fish habitat, but of low sensitivity. More mature tree specimens, still primarily white ash, continue to line Dixie Road, although other plantings in this older residential neighbourhood also include Norway maple and pine, particularly on the east side extending south to Williams Parkway. South of Williams Pkwy trees specimens continue to become older, now perhaps too old for transplantation should their removal be necessary. Tree species diversity continues to expand as well to include often mature specimens of silver maple, white birch, blue spruce and aspen poplar.

Another Etobicoke Creek tributary at the south end of the study area approaches Dixie Road several hundred metres north of Queen Street, also very cloudy, but with what appears to be a continuous flow. This tributary crosses Dixie Road in an easterly direction through a 4 m by 2 m concrete box culvert under the roadway before turning south and adjacent to Dixie Road. Immediately upstream of the west sidewalk and culvert inlet is a 0.4 m channel drop/waterfall from a concrete pad that presumably covers a sewer that crosses under the channel. Fish passage is therefore completely blocked upstream. This tributary was extensively sampled both upstream and downstream of the roadway crossing in the September visit but no fish were observed or captured. Despite the poor sampling success, it must still be considered fish habitat, although of low quality/sensitivity. Any changes in roadway width at this crossing will require culvert extension(s). A detailed fish habitat sketch and data sheets are included as **Attachment 3**. This downstream tributary channel continues flowing south parallel and east of Dixie Road, first between the roadway and row homes and further south into more naturalized parkland, sometimes over/through/around an old concrete lined section, before veering to the east and under Queen Street.

The watercourses described above, although highly disturbed through the course of urbanization, represent the primary natural areas and urban wildlife corridors that cross the study corridor.

**Species at Risk (SAR)**

The location of the proposed Dixie Road improvements is within the urbanised area of the City of Brampton in an area previously disturbed by a lengthy period of agricultural development and usage. The original forest cover as been long removed and much of the surface drainage has been altered to suit the former agricultural activities. As such, much of the original habitat for many species of plants and wildlife has been lost or altered.

In order to comment on the possible presence of endangered and/or threatened species or those of special concern in the vicinity of the project corridor a search of Environment Canada's (EC) Species at Risk Web Mapping Application was undertaken. The federal *Species at Risk Act* (SARA) is meant to provide protection for wildlife species (listed on Schedule 1 of the SARA) and/or critical habitat. The federal government's responsibility for listed aquatic species and birds is also covered by the *Fisheries Act* and *Migratory Bird Convention Act* respectively, which means that prohibitions apply to these species wherever they are found in Canada. For all other species, SARA applies on federal lands only.

Species not protected by SARA may otherwise be protected through provincial legislation. In Ontario, provincial designations of species at risk are protected under the *Ontario Endangered Species Act* (OESA). Both Acts use the same designation categories, starting with the greatest concern; extirpated, endangered, threatened, and special concern. A geographic search was conducted through the Ontario MNR Natural Heritage Information Centre (NHIC). The EC data identifies the long-term species presence in a given region based on their range and may include species that are no longer present. The NHIC database records actual observations of species.

In the greater region surrounding the Dixie Road study area, which is located within the Great Lakes-St. Lawrence Forest Ecoregion where 97 species are listed in all categories, a total of sixteen species of plants and animals have been identified from the records (see **Table 1** below). It should be noted that the listed species represent extremely limited populations which have only been observed in a few specific localities, often many years ago.

None of the listed species were observed during any site visit. Although there is some likelihood that one or more of the species identified below may be present in the type of habitat offered within the green space at the northern limits of the study area, these green spaces are not situated within the work area nor are they situated immediately adjacent to the work area.

**Table 1 – OESA Listed Species of Plants and Animals Potentially in the Vicinity of the Dixie Road Study Area**

| | ***Common Name*** | ***Scientific Name*** |
|---|---|---|
| ***Fish*** | | |
| | Redside dace | *Clinostomas elongatus* |
| | American eel | *Anquilla rostrata* |
| ***Mammals*** | | |
| | Eastern Cougar | *Puma concolor* |
| | Grey Fox | *Urocyon cinereoargenteus* |
| ***Reptiles*** | | |
| | Blandings turtle | *Eyidoidea blandingii* |
| ***Insects*** | | |
| | Rapids clubtail | *Gomphus quaricolor* |
| ***Birds*** | | |
| | Whip-poor-will | *Caprimlugus vociferus* |
| | Chimney swift | *Chaetura pelagica* |
| | Common nighthawk | *Chordeiles minor* |
| | Olive sided flycatcher | *Contopus cooperi* |
| | Henslow's sparrow | *Ammodramus henslowii* |
| | Least Bittern | *Ixobryhcus exilis* |
| | Horned grebe | *Podiceps auritus* |
| | Bobolink | *Dolichonyx oryzivorus* |
| ***Herbaceous Plants*** | | |
| | American Ginseng | *Panax quinquefolius* |
| ***Trees*** | | |
| | Butternut | *Juglans cinerea* |

## Proposed Works, Potential Impacts of Construction and Recommended Mitigation Measures

Significant localized disturbances can be expected to accommodate roadway improvements. Impacts will include vegetation removal, sediment transport and deposition as a result of grading/ground exposure and excavation, dewatering impacts to groundwater/receiving waterbodies from excavation and grading areas and potential interference of fish habitat as a result of culvert extension/replacement.

The roadway cross section of Dixie Road will change from a four lane to a six lane roadway with sidewalks on both sides of the roadway from Queen Street to Countryside Drive and a sidewalk on the east side and a multi-use trail on the west side of the roadway north of Countryside Drive, curb and gutter, and full underground servicing.

The Ministry of Natural Resources in personal communication (telecom with Mark Heaton, September 23, 2008) emphasized the need to protect surface water quality through implementation of stormwater best management practices both during construction and to address long term management objectives. Natural channel design principles are to be utilized where channel interference is anticipated. Riparian corridors are to be protected and enhanced where possible. Similarly, the Ministry of Environment in recent EA related correspondence has emphasized the need to address ecosystem protection and restoration as well as impacts specifically to surface and groundwater, air quality and contamination (**Attachment 4**).

The proposed improvements at each watercourse location as well as the anticipated environmental impacts and proposed mitigation at each site are summarized in the following table, with further details regarding the environmental protection plans provided below:

| Watercourse Crossing Location | Existing Structure | | Proposed Work | Anticipated Environmental Impacts | Proposed Mitigation |
|---|---|---|---|---|---|
| | Type | Size | | | |
| Etobicoke Creek Tributary (Station 14+625, South of Mayfield Road) | CSP | 600 mm diameter | • Culvert removal; storm sewer system to be implemented | • None (not fish habitat) | • Standard erosion and sediment controls for adjacent road improvement work |
| Etobicoke Creek Tributary (Station 14+150, North of Countryside Drive) | CSP | 1.2 m diameter | • Culvert removal; storm sewer system to be implemented | • None (not fish habitat) | • Standard erosion and sediment controls for adjacent road improvement work |
| Etobicoke Creek Tributary (Station 12+950, North of Octillo Blvd) | Concrete Culvert | 4 m x 1 m | • No changes | • None | • Standard erosion and sediment controls for adjacent road improvement work |

| Watercourse Crossing Location | Existing Structure | | Proposed Work | Anticipated Environmental Impacts | Proposed Mitigation |
|---|---|---|---|---|---|
| | Type | Size | | | |
| Etobicoke Creek Tributary (Station 12+300, Sandalwood Parkway) | Concrete Culvert | 4 m x 2 m | • No changes | • None | • Standard erosion and sediment controls for adjacent road improvement work |
| Etobicoke Creek Tributary (Station 7+910, North of Queen Street) | Concrete Culvert | 4 m x 2 m | • Culvert extension to east and west | • No net impacts to fish and fish habitat | • Implement environmental protection plan with emphasis on erosion and sediment control |

The following measures are recommended for implementation to address the anticipated components of related construction activities, which have the potential to negatively effect aquatic and terrestrial environment and will require management. They should form major components of a future environmental protection plan associated with roadway reconstruction, particularly at culvert crossing locations, including:

- All in-water construction to recognize the timing window of July 1st to March 31st for the Etobicoke Creek Watershed.

- The establishment of erosion/sediment controls at construction sites to enclose utility excavations and exposed ground for pavement widenings to prevent migration of sediments towards any of the tributary channels. Erosion control fencing should be placed around all ongoing construction activity areas as well as at adjacent locations where supplies or excavated materials and imported fills may be temporarily stored. Fencing is to be checked routinely for effectiveness and regularly cleared of silt accumulation to ensure the integrity of erosion prevention/sediment containment measures. Areas of exposed soil, especially newly graded areas that cannot be immediately stabilized with the final surface treatments are to be treated with straw mulch, erosion blanket, sod or hydroseed, depending on the specific circumstances. Additional protective measures may be necessary at culvert locations. Design plans within regulated areas are to follow ESC guidelines within the following document *Erosion and Sediment Control Guideline for Urban Construction (2006)*.

- The possibility of dewatering for utilities placement has the potential to introduce sediments to the local watercourses. Methods must be identified for isolating construction activities from aquatic habitats and suitable methods must be developed for reintroduction of dewatering effluent to the watercourse without impact. Where it becomes necessary to dewater excavation areas, effluent should be directed over grassed areas. Filter bags must be attached to pump outlets, which are to be located no closer than 30 m from any water body. Settling ponds, swales and check dams and/or any other measures must be incorporated as necessary to prevent sedimentation of the adjacent waterbodies. A Permit to Take Water (PTTW) may be required from the Ministry of the Environment.

- Although no rare species or outstanding specimen trees were observed, a tree inventory of the study area corridor should nevertheless be undertaken at the commencement of the Detail Design phase on appropriate mapping that identifies individual trees and shrubs in order to accurately determine vegetation removal requirements. Any removal of trees and shrubs must be minimized given the limited vegetation cover. Approved vegetation clearing should only be undertaken before the onset of the avian breeding season, as per the federal *Migratory Birds Act*. Tree cutting should only be permitted after August 1 and before May 1 to prevent destruction of migratory bird nests. Upon the completion of construction disturbed areas should be replanted with site-appropriate native, indigenous trees and shrubs. An overall site landscaping plan will be prepared, to include replacement trees and shrubs as well as specific riparian enhancement plantings. Snow fencing must be utilized to protect any existing vegetation and to delineate areas not to be disturbed by construction activities.

- Operating, refuelling and maintenance of construction equipment and the handling and storage of toxic materials (e.g., fuel, lubricants, form oils, paints, wood preservative, and other chemicals) must be carried out in such a way as to avoid contamination of soils, groundwater and surface waters. Temporary materials and equipment storage locations must be approved. Measures must be in place to reduce the risk of spills and to minimize impacts of accidental spills during construction including a contingency plan ready for immediate implementation that includes immediate reporting of incidents to MOE's Spills Action Centre and the Region of Peel's Environmental Control Group. In addition, there must be adequate measures to prevent or capture and contain any debris and spills resulting from construction activities. All such measures and procedures will conform to pertinent provincial requirements.

- The implementation of stormwater quality best management practices is recommended to accommodate new pavement surface areas. As well, opportunities to retrofit existing roadway surfaces and direct runoff to new stormwater quality treatment facilities is urged to aid in the surface water quality improvement effort.

- As previously discussed, there is a possibility, however remote, of one or several of the identified SAR species occurring within or adjacent to construction locations. Mitigation measures must consider this possibility. No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species as identified in the provincial *Endangered Species Act*. Management options (e.g. through site, timing or design changes) to minimize, reduce or control adverse effects include the design of compensatory or mitigation measures and the implementation of environmental effects monitoring if required to avoid destruction, injury or interference with the species, its residence and/or its habitat.

## Cumulative Effects

A preliminary cumulative effects review has been undertaken following the principles of identification of environmental elements, identification of potential impacts and consideration of interactions on significant site features (fish, wildlife, vegetation, SAR) to ascertain the residual and cumulative effects associated with widening of Dixie Road. The results of this review determined both the residual and cumulative effects to be negligible as described below, based on the mitigation measures proposed. Roadway improvements are not expected to result in significant residual adverse environmental effects.

*Aquatic Habitat (fish and fish habitat)*

Roadway improvements are not anticipated to result in significant cumulative effects to aquatic habitat at the Etobicoke Creek tributary crossings. While there may be direct impacts at the construction sites due to land clearing and infrastructure placement, there can be new and important benefits to fish habitat with opportunities for site enhancement through mitigation measures (e.g. riparian plantings) and improvements to local water quality (e.g. implementation of roadway stormwater management BMPs). There should be a goal of net environmental benefit established by all players through the various phases of roadway improvements. No significant adverse cumulative effects to aquatic habitats are therefore anticipated.

*Terrestrial Habitat (vegetation, wildlife, SAR)*

The project is not anticipated to result in significant cumulative effects to terrestrial habitat. There will be some removals of existing trees and shrubs to accommodate the new facilities. Vegetation removals will affect local terrestrial habitats for only a limited time period (at a non-critical season) and it is not anticipated that these activities will affect the regional composition of wildlife habitat or significant vegetative features in the larger area. Replanting plans must be in place for the entire roadway corridor length and riparian plantings will mitigate vegetation removals near waterbodies and enhance connectivity opportunities. No significant adverse cumulative effects are anticipated.

*Water Quality (groundwater, surface water and hydrology)*

Proposed stormwater facilities are not anticipated to result in significant impacts on water quality during construction given the controls on the management of water flowing or residing in the area, the effective implementation of erosion and sediment control measures, spill contingencies and the implementation of best management practices for construction in regulated areas. An objective of the project is to improve stormwater quality in the longer term following completion of construction. Therefore, no significant adverse cumulative effects to water quality are anticipated.

# ATTACHMENT 1

## Drawings

Natural Resources Canada | Ressources naturelles Canada

Canada

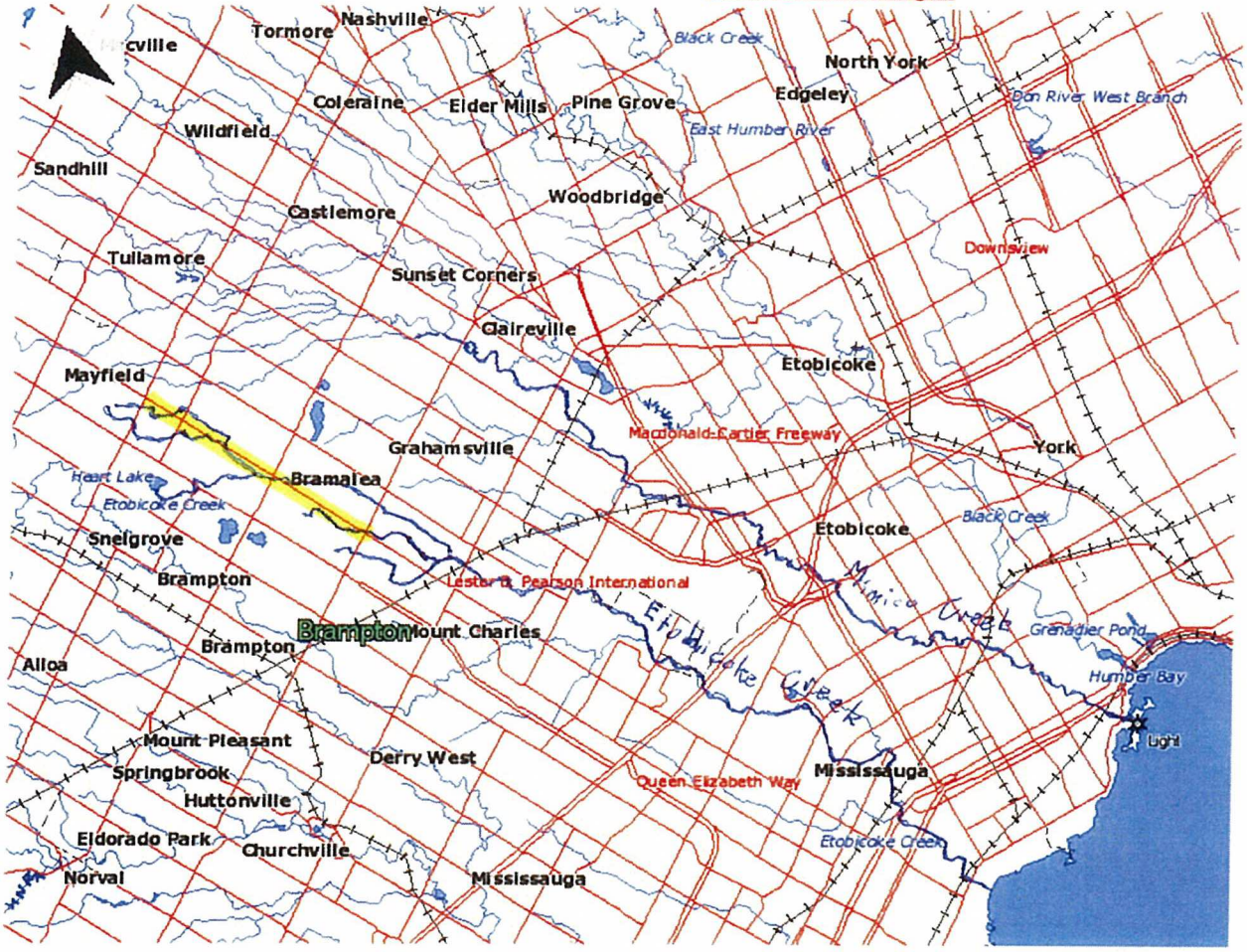
Print Map

Return to Map

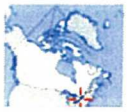
The Atlas of Canada Since 1906

## Toporama – Topographic Maps

Printable version of the legend




Map Scale 1:120 000





Study Corridor Location
(and Etobicoke Creek Watershed)

Study Corridor

Natural Resources Canada | Ressources naturelles Canada

Cana

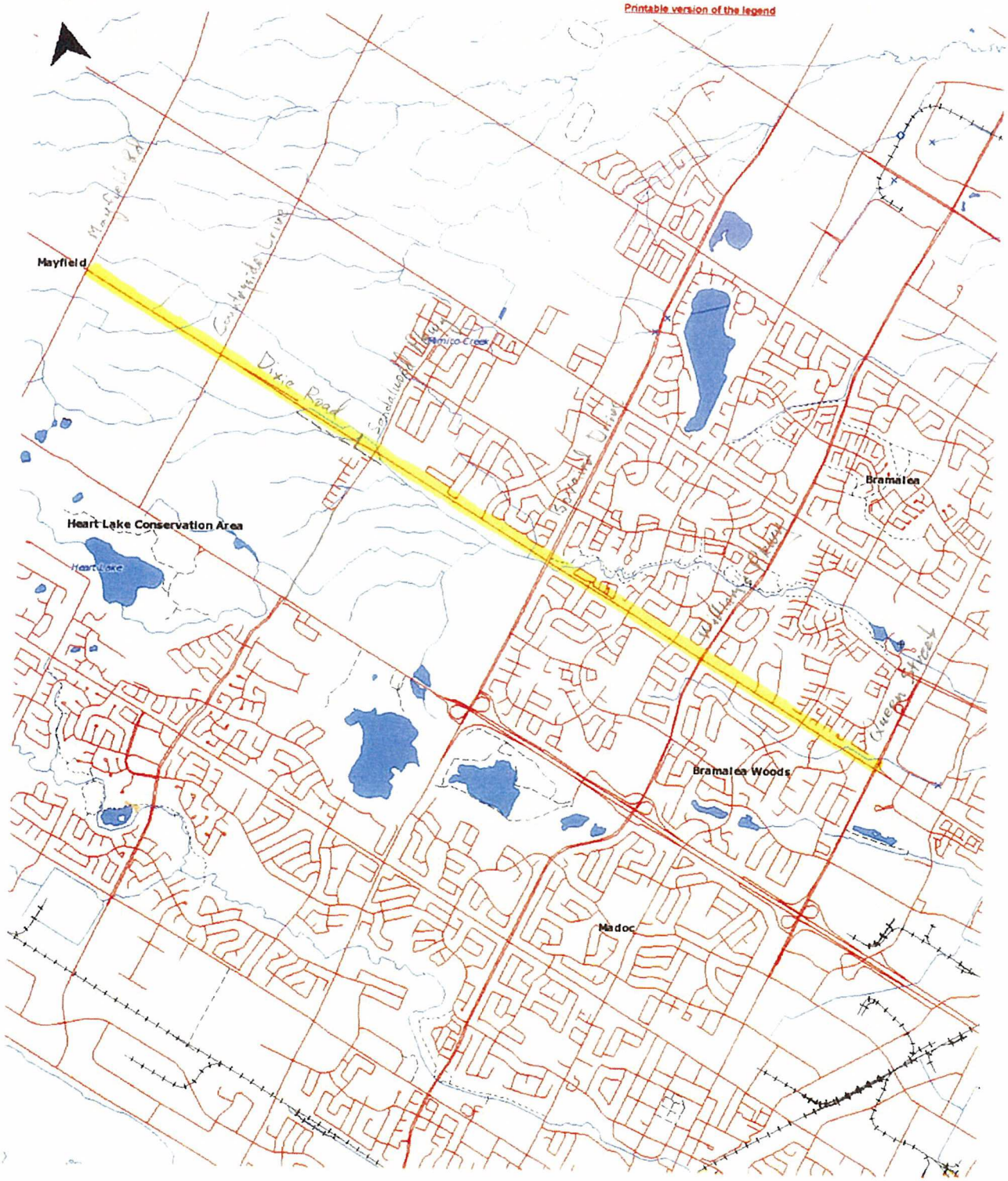
Print Map

Return to Map

The Atlas of Canada Since 1906

Toporama – Topographic Maps

Printable version of the legend



Natural Resources Canada | Ressources naturelles Canada

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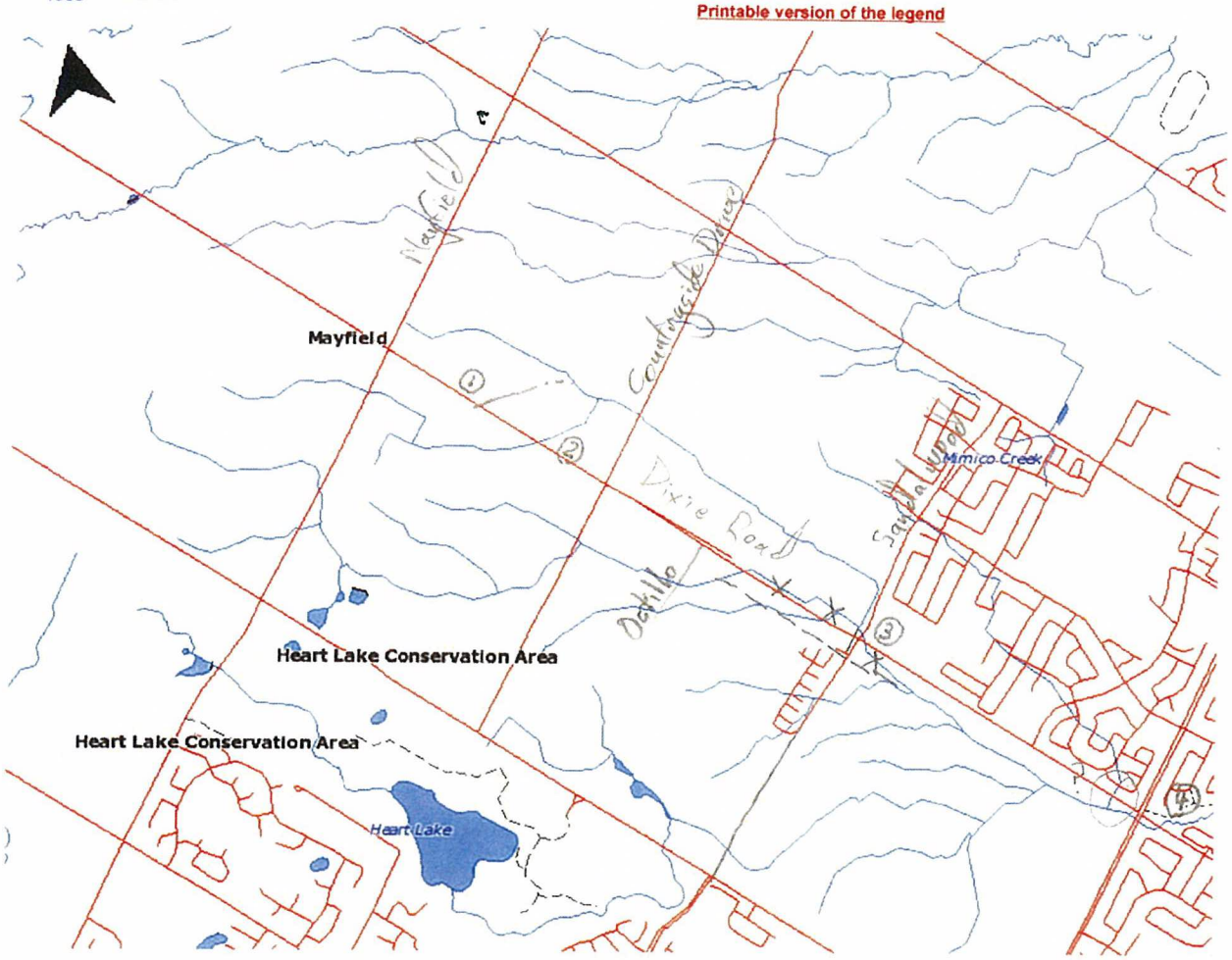
Toporama – Topographic Maps

Printable version of the legend




Map Scale 1:20 000



Channel Diversion South of Countryside Drive at Octillo

① culvert crossings

culvert not found

# ATTACHMENT 2

## Photographic Diary – August 8, 2008

The roadway south of Mayfield Road crosses farmlands to the east and west

A 0.6 m diameter CSP crosses under Dixie Road south of Mayfield Road conveying a headwater tributary of Etobicoke Creek to the southeast

Another Etobicoke Creek tributary crosses Dixie Road north of Countryside Drive via a 1.8 m diameter CSP

The roadway becomes a rural section with recently planted white ash on the west side

Another Etobicoke Creek tributary has been recently diverted south and west of Dixie Road

View north at Ortillo Blvd. where the Etobicoke Creek channel crosses under the roadway west of Dixie Road

Sections of the channel are cattail filled while other areas are open.
The water was quite turbid/brown above the reservoir

South of Sandalwood at the Soccer Centre the channel remains turbid (above)
while it has cleared somewhat at the lower end of the reservoir at Bovaird Drive (below)

The watercourse enters more-or-less a natural channel through Manitou Park southeast of the Bovaird/Dixie Road intersection. Water colour remains murky.

An additional Etobicoke Creek tributary crosses Dixie Road above Queen Street.
A major concrete channel obstruction is immediately upstream (west)

This EtobicokeCreek tributary continues south parallel to and east of Dixie Road

The channel swings to the east in parkland just north off Queen Street. A small grove of little leaf linden, silver maple and Scots pine (above, right) occupies the northeast quadrant of Queen Street and Dixie Road.

# ATTACHMENT 3

## Fish Habitat Sketch and Data Sheets – Etobicoke Creek Tributary north of Queen Street

## GENERAL INFORMATION

| PROJECT #: | PROJECT DESCRIPTION: | DAY: | MONTH: | YEAR: |
|---|---|---|---|---|
| | | 10 | 09 | 08 |

**Is STREAM REALIGNMENT required for this section:**

O Yes  O No  O Unknown

| COLLECTORS: | WEATHER CONDITIONS: | TIME STARTED: | TIME FINISHED: |
|---|---|---|---|
| Chris Tobin, Rud. Warne | Sunny 17°C | 0930 | 1530 |

**PHOTOS NUMBERS AND DESCRIPTIONS:**

## LOCATION

| NAME OF WATERBODY: | DRAINAGE SYSTEM: | CROSSING #: | STATION #: |
|---|---|---|---|
| Minico Cr Trib | | | |

**LOCATION OF CROSSING:**

Lake Ke 500 m North of Queen St. Aurora

| UTM EASTING & NORTHING: | MTO CHAINAGE: |
|---|---|
| 17T 602239 4841211 | |
| **TOWNSHIP:** | **MNR DISTRICT:** Aurora |

## LAND USE AND POLLUTION

| SURROUNDING LAND USE: | SOURCES OF POLLUTION: |
|---|---|
| Residential | Urban - runoff |

## EXISTING STRUCTURE TYPE

| Bridge O | Box Culvert (concrete) X | Open Foot Culvert O | CSP O | N/A O |
|---|---|---|---|---|

Other O Describe:  Size (w x h) m2

## SECTION TYPE AND MORPHOLOGY

| SECTION IDENTIFIER: | SECTION LOCATION: (Include on habitat map) |
|---|---|
| Rud. Warne | |

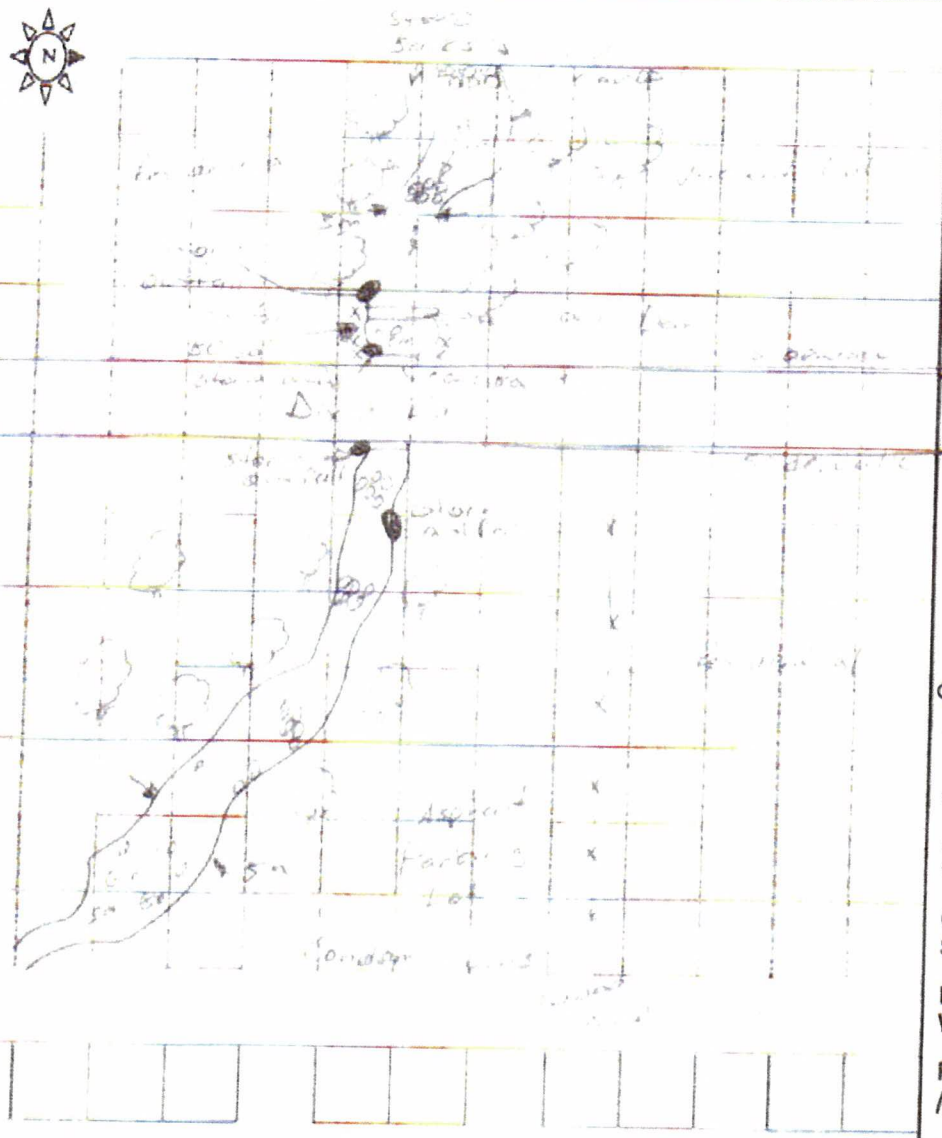
| TYPE: | Stream / river | Channelized | Permanent | Intermittent | Ephemeral | ASSOCIATED WETLAND: |
|---|---|---|---|---|---|---|
| | X | O | X | O | O | |

| TOTAL SECTION LENGTH (m): | CURRENT VELOCITY (m/s): |
|---|---|
| | |

| SUB-SECTION(S) | Run | Pool | Riffle | Flats | Inside culvert | Other |
|---|---|---|---|---|---|---|
| | O | O | O | O | O | |
| Percentage of area | 5 | 5 | 10 | 80 | | |
| mean depth wetted (m) | | | | 0.25 | | |
| mean width wetted (m) | | | | 3 | | |
| Mean bankfull width (m) | | | | 8 | | |
| Mean bankfull depth(m) | | | | 1.0 | | |
| Substrate | 10 Bo 90 Gr Sa | 10 Bo 90 Fi Sa | 10 Co 90 Gr Sa | 20 Bo 80 Gr Sa | | |

| Bedrock Br | Boulder Bo | Cobble Co | Gravel Gr | Sand Sa | Silt Si | Clay Cl | Muck Mu | Detritus D |
|---|---|---|---|---|---|---|---|---|

| SECTION IDENTIFIER: | SECTION LOCATION: | SECTION LENGTH (m): | SCALE (cm / m): |
|---|---|---|---|
| | | | |



**PROJECT #:**

**MAPPER:**

**NAME OF WATERBODY:**

**CROSSING #:**

**STATION #:**

**DATE: DD-MMM-YY**

***LEGEND***

**10d** depth (cm)
**6w** width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

⁘ Fine Substrate
**###** Gravel Substrate

**oOooO** Cobble /Boulder
*** * *** Debris

**CT** Cattail
**SV/FV** Submerg/Float Veg

**EV** Emergent Vegetation
**W** Watercress

**Fe** Iron Staining
**///////** Eroded Bank

**XXX** Riprap / Other Stabilization

⬭ Instream Log/Tree
**^^^** Dam/Weir/Obstruction

® Riparian Tree

⊢► Seep/Spring
**-------** Undercut Bank

**—** Barrier to Fish Movement
**-S-** Seasonal Barrier

**-x--x-** Fence line
⌴ Culvert

**PROFILE:** **Horz. Scale** **Vert. Scale**

**BANK STABILITY**

| | Stable | Slightly Unstable | Moderately Unstable | Unstable |
|---|---|---|---|---|
| Left Upstream Bank | O | Ø | O | O |
| Right Upstream Bank | O | Ø | O | O |

**HABITAT**

| IN-STREAM COVER (% surface area): | Undercut banks | Boulders | Cobble | Large Woody Debris | Organic debris | Vascular plants | None |
|---|---|---|---|---|---|---|---|
| | | 5 | | Instream 5<br>Overhanging 10 | 5 | Instream 0<br>Overhanging 0 | 80 |

| SHORE COVER (% stream shaded): | 100 – 90 % | 90 – 60% | 60- 30% | 30 – 1% | None |
|---|---|---|---|---|---|
| | O | Ø | O | O | O |

| VEGETATION TYPE (%): | Submergent | Floating | Emergent | None |
|---|---|---|---|---|
| | 5 | 0 | 5 | 80 |
| Predominant Species | | | | |

| MIGRATORY OBSTRUCTIONS: | None | Seasonal | Permanent |
|---|---|---|---|
| POTENTIAL CRITICAL HABITAT LIMITING: | Spawning | Evidence of Groundwater | Other |

**POTENTIAL ENHANCEMENT OPPORTUNITIES:**

**COMMENTS :**

Conductivity 1081 uS/cm

PH 8.12

Temp (water) 18.4 °C

D.O 4.64 mg/L

**Additional Notes Appended?** O No O Yes number of pages _____

# ATTACHMENT 4

## Agency Correspondence

Ministry of the Environment

Central Region
Technical Support Section

5775 Yonge Street, 8th Floor
North York, OntarioM2M 4J1

Tel.: (416) 326-6700
Fax: (416) 325-6347

Ministère de l'Environnement

Région du Centre
Section d'appui technique

5775, rue Yonge, 8ième étage
North York, Ontario M2M 4J1

Tél. : (416) 326-6700
Téléc. : (416) 325-6347

Ontario

July 16, 2008

File: 05-02-05

Hitesh Topiwala, MCIP, RPP
Environment, Transportation and Planning Services
Region of Peel
11 Indell Lane, 2nd Floor
Brampton, Ontario, L6T 3Y3

**RE: Dixie Road Improvements from Queen Street to Mayfield Road**
**Region of Peel**
**Municipal Class Environmental Assessment - Schedule C**
**Response to Notice of Commencement - Technical Support Section Comments**

Dear Mr. Topiwala:

The Ministry of the Environment (MOE), Central Region Technical Support Section has received your Notice of Commencement for the above noted Environmental Assessment (EA).

It is our understanding that this study involves an examination of the need and feasibility for widening, intersection improvements, changes to road and intersection geometrics and pavement rehabilitation on Dixie Road between Queen Street and Mayfield Road to address short and long term issues related to planned future growth. This response acknowledges that the study is following the approved environmental planning process for a Schedule C project under the *Municipal Engineers Association Municipal Class Environmental Assessment* (Class EA).

Based on the information submitted, we have identified the following issues of concern with respect to the proposed undertaking:

- Ecosystem Protection and Restoration
- Surface Water
- Groundwater
- Air Quality, Dust and Noise
- Contaminated Soils
- Mitigation and Monitoring
- Planning and Policy
- Class EA Process
- First Nations Consultation

We are providing the following general comments to assist you and your project team members in effectively addressing these issues:

**Ecosystem Protection and Restoration**

- Any impacts to ecosystem form and function must be avoided where possible. The EA Document should describe any proposed mitigation measures and how project planning will protect and enhance the local ecosystem.

- All natural heritage features should be identified and described in detail to assess potential impacts and to develop appropriate mitigation measures. Our records confirm that the following sensitive environmental features are located within or adjacent to the study area:

  - Watercourses
  - Wetlands
  - Woodlots

We recommend consulting with the Ministry of Natural Resources (MNR), Fisheries and Oceans Canada (DFO) and your local conservation authority to determine if special measures or additional study will be necessary to preserve and protect these sensitive features.

**Surface Water**

- The EA Document must include a sufficient level of information to demonstrate that there will be no negative impacts on the natural features or ecological functions of any watercourses within the study area. Measures should be included in the planning and design process to ensure that any impacts to watercourses from construction or operational activities (e.g. spills, erosion, pollution) are mitigated as part of the proposed undertaking. The MOE Guideline B-6, *Evaluating Construction Activities Impacting on Water Resources* should be used to plan and construct this project.

- Additional stormwater runoff from new pavement can impact receiving watercourses and flood conditions. Quality and quantity control measures to treat stormwater runoff should be considered for all new impervious areas and, where possible, existing surfaces. MOE's *Stormwater Management Planning and Design Manual* (2003) should be referenced in the EA Document and utilized when designing stormwater control methods. We recommend that a Stormwater Management Plan should be prepared as part of the Class EA process that includes:

    - Strategies to address potential water quantity and erosion impacts related to stormwater draining into streams or other sensitive environmental features, and to ensure that adequate (enhanced) water quality is maintained
    - Watershed information, drainage conditions, and other relevant background information
    - Future drainage conditions, stormwater management options, information on erosion and sediment control during construction, and other details of the proposed works
    - Information on maintenance and monitoring commitments

**Groundwater**

- The status of, and potential impacts to, any well water supplies should be addressed. If the project involves groundwater takings or changes to drainage patterns, the quantity and quality of groundwater may be affected due to drawdown effects or the redirection of existing contamination flows. In addition, project activities may infringe on existing wells such that they must be reconstructed or sealed and abandoned. Appropriate information to define existing groundwater conditions should be included in the EA Document.

- If the potential construction or decommissioning of water wells is identified as an issue, the EA Document should refer to Ontario Regulation 903, Wells, under the *Ontario Water Resources Act.*

- Potential impacts to groundwater-dependent natural features should be addressed. Any changes to groundwater flow or quality from groundwater taking may interfere with the ecological processes of streams, wetlands or other surficial features. In addition, discharging contaminated or high volumes of groundwater to these features may have direct impacts on their function. Any potential effects should be identified, and appropriate mitigation measures should be recommended. The level of detail required will be dependent on the significance of the potential impacts.

- Any potential approval requirements for groundwater taking or discharge should be identified in the EA Document. In particular, a Permit to Take Water (PTTW) under the *Ontario Water Resources Act* will be required for any water takings that exceed 50,000 litres per day. A PTTW application must be accompanied by an assessment of potential effects as noted above, and may require a higher level of detail than what is provided in the EA Document. Please note that when significant long-term water taking is proposed, the maximum rate identified in the EA Document must not be exceeded in any subsequent PTTW applications. For more information on the application and approval process, we suggest you refer to the MOE *Permit to Take Water Manual* (April 2005).

**Air Quality, Dust and Noise**

- An air quality impact assessment may be required for this project to evaluate alternatives, determine impacts and identify appropriate mitigation measures. The scope of the assessment should be determined based on the potential effects of the proposed alternatives, and typically includes source and receptor characterization, a quantification of air quality impacts by determining emission rates and conducting dispersion modelling, and an assessment of effects. This assessment should compare to all available standards for any contaminants of concern. We recommend that you contact this office during the scoping process to confirm the appropriate level of assessment.

- The EA Document should consider the potential impacts of increased dust and noise levels on residential or other sensitive land uses resulting from this project during construction and operation. The EA Document should explore all potential measures to mitigate significant noise impacts during the assessment of alternatives. If dust suppressants are proposed to be used, we recommend the use of non-chloride based compounds to protect water quality.

**Contaminated Soils**

- If the removal or movement of soils may be required, appropriate tests to determine contaminant levels from previous land uses or dumping should be undertaken. If the soils are contaminated, you must determine how and where they are to be disposed of, consistent with *Part XV.1 of the Environmental Protection Act (EPA)* and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up. We recommend contacting the MOE Halton-Peel District Office for further consultation if contaminated sites are present.

- The location of any underground storage tanks should be included in the EA Document. Measures should be identified to ensure the integrity of these tanks and to ensure an appropriate response in the event of a spill. The MOE Spills Action Centre must be contacted in such an event.

- The EA Document should identify any underground transmission lines in the study area. The owners should be consulted to avoid impacts to this infrastructure, including potential spills.

**Mitigation and Monitoring**

- Design and construction reports and plans should be based on a best management approach that centres on the prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.

- All waste generated during construction must be disposed of in accordance with MOE requirements.

- Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation are met. Mitigation measures should be clearly referenced in the EA Document and regularly monitored during the construction stage of the project. In addition, we encourage you to conduct post-construction monitoring to ensure all mitigation measures have been effective and are functioning properly. The construction and post-construction monitoring plans should be documented in the EA Document.

**Planning and Policy**

- The 2005 Provincial Policy Statement contains policies that protect Ontario's Natural Heritage. Applicable policies should be referenced in the EA Document, and you should demonstrate how this proposed project is consistent with these policies.

- The *Places to Grow Plan* contains policies which guide decisions on a range of issues such as infrastructure planning and land-use planning to ensure that stronger and more prosperous communities are built in the Greater Golden Horseshoe. The EA Document should demonstrate how this project adheres to the relevant policies of the *Places to Grow Plan*, including Section 3, which contain policies for Infrastructure to Support Growth.

**Class EA Process**

- The EA Document should provide clear and complete documentation of the planning process in order to allow traceability of decision-making. It must also demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all public consultation efforts undertaken during the planning process. Additionally, it should identify all concerns that were raised and how they have been addressed throughout the planning process. You should include copies of any comments submitted on the project by interested stakeholders, and your responses to these comments.

- The Class EA requires the consideration of the effects of each alternative on all aspects of the environment. The EA Document should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments) such that all potential impacts can be identified and appropriate mitigation measures can be developed. Any supporting studies conducted during the Class EA process should be referenced and included as part of the EA Document.

- Please include in the EA Document a list of all subsequent permits or other approvals that may be required for the implementation of the preferred alternative, including Permits to Take Water, Certificates of Approval or other ministerial approvals, approval under the *Canadian Environmental Assessment Act* (CEAA), and conservation authority permits.

- Please note that MOE guidelines and other information related to the issues noted above are available at www.ene.gov.on.ca under the publications link. We encourage you to review all the available guides and to reference any relevant information in the EA Document.

**First Nations Consultation**

- Please note that as part of the required stakeholder and agency consultation, you are advised to contact the Ministry of Aboriginal Affairs and the Department of Indian and Northern Affairs to determine potentially affected Aboriginal communities in the project area. Please refer to the website www.ene.gov.on.ca/envision/env_reg/ea/english/General_info/GRTList.htm for a list of appropriate government contacts.

- Once identified, you are advised to provide notification directly to the Aboriginal communities who may be affected by the project and provide them with an opportunity to participate in any planned public consultation sessions and comment on the project.

**Submissions**

- To facilitate the review of this project, please submit the following:
    - Copies of any PIC materials and handouts
    - A draft copy of the EA Document a minimum of 30 days prior to filing for initial comments
    - A copy of the Notice of Completion and final EA Document once completed

Thank you for the opportunity to comment on this project. Should you or any members of your project team have any questions, please feel free to contact me at 416-326-4839.

Yours truly,

Alex Blasko
Environmental Resource Planner and EA Coordinator
Air, Pesticides and Environmental Planning

c. Stephen Keen, TSH Associates
Vincent Sferrazza, Halton-Peel District Office, MOE
Central Region EA File
A & P File

Region of Peel
Working for you

# Regional Municipality of Peel

# Class Environmental Assessment Study for Dixie Road (Regional Road 4) from Mayfield Road northerly for 2.0 km, Town of Caledon

## Natural Environment Review

**June 2011 (Revised August 2011)**

AECOM

warmé engineering and biological services

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## 1.0 INTRODUCTION AND BACKGROUND

The Region of Peel is presently undertaking a Schedule "C" Environmental Assessment under the Province's Municipal Class EA process to establish a plan to address roadway improvements along Regional Road 4/Dixie Road extending north from Mayfield Road (Regional Road 14) for approximately 2.0 km in the Town of Caledon. Roadway improvement alternatives have been reviewed and evaluated based on a number of criteria in the EA process including engineering and public safety as well as economic, social and natural environment factors.

The purpose of this report is to identify and document, through field investigation and review of existing background information the current conditions of aquatic and terrestrial environment that encompass and surround this northerly section of Dixie Road. A preliminary assessment of potential impacts follows that assumes there will be alterations to the site as a result of roadway improvement activities that will include a widening to four lanes and the addition of turning lanes at Mayfield Road and several other proposed new intersections.

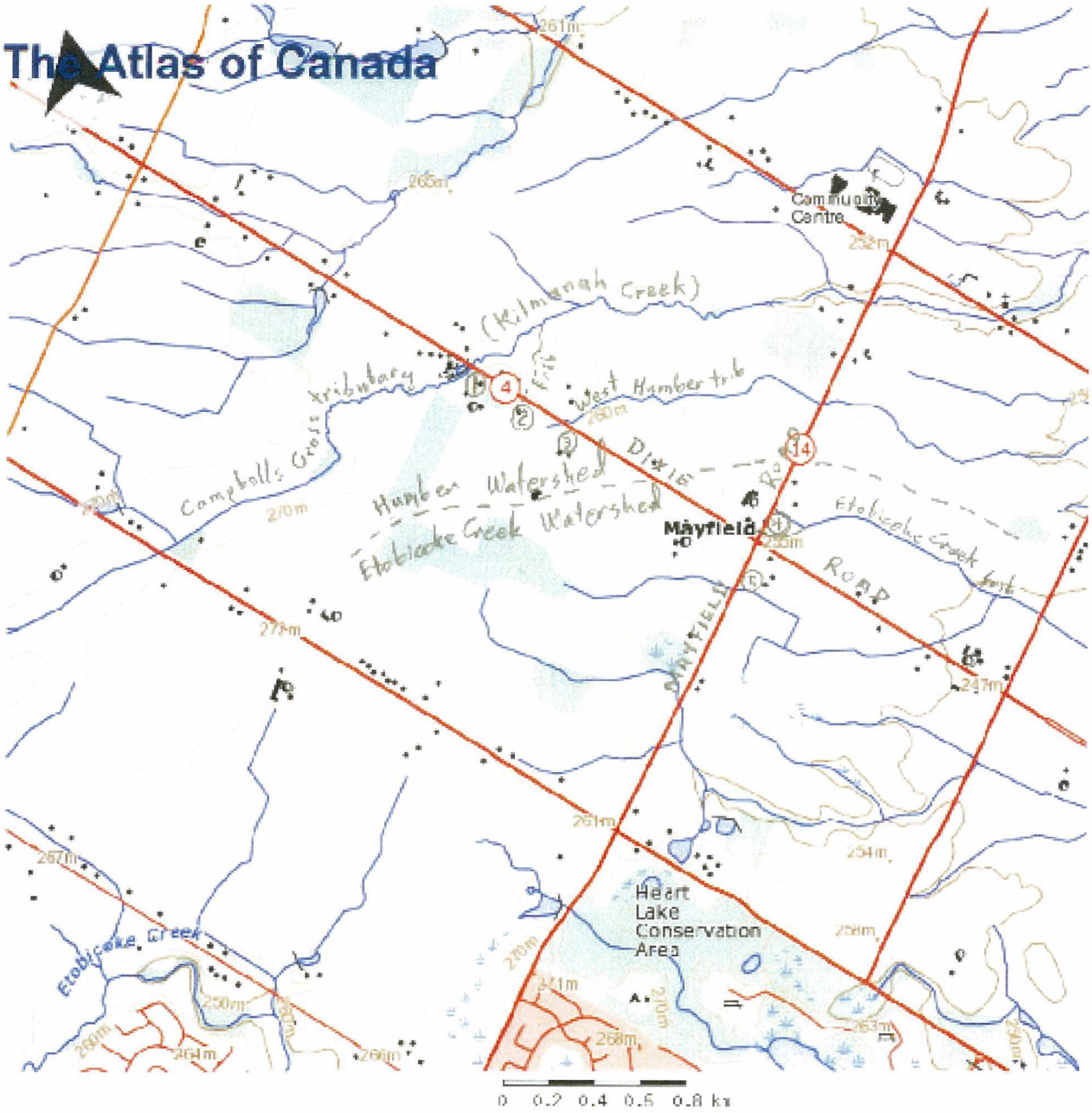
Drainage alterations and dewatering of excavations and work areas during the construction will result in impacts to surrounding areas and in particular the receiving waterbodies. There is a potential for sediment transport towards and deposition into the nearby West Humber River tributary channels that cross the study area at several locations within the study limits. As well, headwater tributaries of Etobicoke Creek drain the Mayfield/Dixie Road intersection.

The Toronto and Region Conservation Authority (TRCA) was able to provide through its Humber River Fisheries Management Plan fisheries information for the single permanently flowing stream known locally as Kilmanagh Creek or the "Campbell's Cross Tributary". Flows in the remaining tributary culvert crossings located within the study area are intermittent. For the most part, TRCA staff considers these smaller headwater tributaries to be indirect fish habitat. There are no wetlands or significant woodlots within or adjacent to the study corridor.

The several watercourse channels and associated roadway crossings are identified on **Figure 1 – Location Plan**.

The potential for cumulative effects must be considered in preparing for project implementation.

**Figure 1 - Location Plan**



## 2.0 STUDY AREA DESCRIPTION

The study area was investigated on several occasions in order to gain an appreciation of the environmental setting over the course of the season. Visits occurred on June 29, August 8, October 18 and again on December 22, 2010. The adjacent land is entirely rural agricultural at present, although residential and commercial development is transforming the area rapidly.

Cultivated lands and hay fields occupy all sectors with associated buildings and scattered rural residential homes. A major dairy operation operates at the northeast quadrant at Mayfield Road. Scattered trees parallel the roadway corridor for much of its length. Most have been more recently planted by the Municipality and several are associated with the residential dwellings along the roadway.

Dixie Road at this location is situated at the boundary of the South Slope and Peel Plain Physiographic Regions (Chapman and Putnam, 1984). The lands are typically flat till plain characterized by well drained, clay soils. The study area at this location is within the headwaters of both the Humber River and Etobicoke Creek watersheds.

Two headwater tributaries of the West Humber River cross the area from northwest to southeast. The more northerly branch, with its headwaters northeast of Campbell's Cross, appears to be permanently flowing with a large off-stream pond immediately adjacent to the roadway on the west side (survey station 16+420). Known locally as Kilmanagh Creek, it is conveyed across Dixie Road via a 5.5 m wide by 3 m high non rigid frame concrete culvert. Although a Fish Collection Licence was obtained from the Ministry of Natural Resources, no electroshocking was undertaken to identify the resident fish community due to the possible presence of redside dace, a fish species at risk listed in MNR's Endangered Species Act legislation.

On June 29 the north tributary at the culvert (Crossing 1) was approximately 2.5 m wide and 0.3 m in depth at the culvert inlet, flowing as a run over a rocky substrate with occasional boulders and silt areas. The bankfull height was approximately 0.6 m indicating significant flow variations in times of extended precipitation. Immediately upstream in the northeast quadrant was a large 20 m by 30 m off-line pond immediately adjacent to the roadway. Adjacent vegetation included Manitoba maple, elm, white cedar, hawthorn, riverbank grape touch-me-not, goldenrod, iris, deadly nightshade, Joe pie weed and canary grass. Downstream, the channel meandered as a series of pools and riffle areas through abandoned pasture with occasional trees and overhanging shrubs and long grasses providing overhead cover. A detailed fish habitat sketch and data sheets are included as **Appendix 1**.

The TRCA was able to provide background information through its website for the West Humber area and in particular this Campbell's Cross tributary. The Humber River system lists 74 species of

fish as resident in its various reaches. Forty-three species were recorded in the most recent 2001 comprehensive survey. This information is contained in the Humber River Fisheries Management Plan (2004), which documents fisheries information for the entire watershed as well as defining specific management objectives for various reaches. Excerpts of this report are contained in **Appendix 2**. The Campbell's Cross tributary (Kilmanagh Creek) has been identified as a "small riverine cold water channel" to be specifically managed for brook trout and redside dace. Applicable management objectives that could impact this Environmental Assessment include protection of existing wetlands (none within our study area), rehabilitation of degraded sections of channel, any stormwater ponds to have bottom draw outlets or subsurface drainage, maintenance or enhancement of existing base flow and reduction of sediment runoff from construction activities. The Endangered Species Act has specific penalties for harmful impacts to a listed species or its habitat. Additional discussion on species at risk follows in Section 3 of this Report.

From Appendix V of the Humber Report the following fish species were recorded at an upstream fish sampling station (HU017WM) in 2001 by MNR/TRCA: white sucker (*Catostomus commersoni*), northern hogsucker (*Hypentelium nigricans*), fathead minnow (*Pimephales promelas*), blacknose dace (*Rhinichthys atratulus*), creek chub (*Semotilus atromaculatus*), brook stickleback (*Culaea inconstans*) and Johnny darter (*Etheostoma nigrum*).

A detailed photographic diary of the August field visit is contained as **Appendix 3** of this report.

A secondary, unmapped tributary of Kilmanagh Creek was conveyed across the roadway from the west by a 750 mm diameter CSP at chainage 16+280 (Crossing 2). The upstream drainage area is the grassed front yard of a farm residence. Downstream and to the east, a narrow channel with occasional cattails crossed the yard of another residence. The culvert itself has been placed on grade and is slightly perched at its downstream end. Although this channel contributes flow to the system in the spring and during significant precipitation events it does not appear to provide direct fish habitat. No water was in the channel or within the culvert during the August fish survey.

Several hundred metres further south and approximately 0.9 km north of Mayfield Road at 15 +910 another West Humber River tributary (Crossing 3) crosses diagonally under Dixie Road via twin 1.2 m diameter CSPs. There was some stagnant water in each of the culvert barrels but no fish were observed on the June site visit. Adjacent vegetation filled channels were dry with no observable streambed. Upstream, a 2 m wide area of uncut grass paralleled a farm entrance driveway with adjacent mowed lawn. Downstream, the channel extended southeast through a hay field. Adjacent vegetation included purple loosestrife, long grasses, goldenrod and a cattail patch at the culvert outlet. It was not considered fish habitat.

Two Etobicoke Creek tributaries cross Mayfield Road from north to south within close proximity to the study area. Within several metres east of Dixie Road on Mayfield and partially obscured in the

deep roadside ditch a 0.6 mm diameter CSP (Crossing 4) directs ditch flows and adjacent barnyard drainage to the southeast quadrant. The intermittent drainage is directed across cultivated lands to join another branch. To the west of the Dixie Road intersection another tributary is conveyed under Mayfield Road via a 750 mm CSP (Crossing 5), which is located just beyond the present zone of roadway improvement disturbance. It provides roadside drainage in the northwest quadrant as well as some drainage from the adjacent farmland. These two upper tributaries are in open field settings and distinguishable only as shallow depressions across surrounding agricultural fields. They are typically dry through the summer months and do not provide any fish habitat.

The watercourses described above, with the exception of the Campbell's Cross tributary are significantly degraded but do represent the primary natural areas and urban wildlife corridors that cross the study corridor. Aside from the tree species associated with the Campbell's Cross tributary, scattered specimens occur along the road right-of-way associated primarily with adjacent farm dwellings. There are only a few - two dozen or so grouped in two locations on the west side of the roadway within the study area – one area of lindens approximately 700 m north of Mayfield and the other immediately north and south of the southerly tributary crossing. The species vary (tamarack, linden, red oak, horse chestnut). They appear to have been in the ground for 5 to10 years and are somewhat stunted from transplant shock and lack of maintenance. They could probably be transplanted for a widening, but with a mechanical tree spade since roots have spread; however, it probably would cost an equivalent amount to purchase new native tree stock of a reasonable size.

The watercourses described above, although highly disturbed through the course of urbanization, represent the primary natural areas and urban wildlife corridors that cross the study corridor.

## 3.0 SPECIES AT RISK (SAR)

The proposed Dixie Road improvements north of Mayfield Road are within the Town of Caledon in an area previously disturbed by a lengthy period of agricultural usage. The original forest cover has been long removed and much of the surface drainage has been altered to suit the present agricultural activities. As such, the vast majority of the original habitat for many species of plants and wildlife has been lost or altered.

In order to comment on the possible presence of endangered and/or threatened species or those of special concern in the vicinity of the project corridor a search of Environment Canada's (EC) Species at Risk Web Mapping Application was undertaken. The federal *Species at Risk Act* (SARA) is meant to provide protection for wildlife species (listed on Schedule 1 of the SARA) and/or critical habitat. The federal government's responsibility for listed aquatic species and birds is also covered by the *Fisheries Act* and *Migratory Bird Convention Act* respectively, which means that prohibitions apply to these species wherever they are found in Canada. For all other species, SARA applies on federal lands only.

Species not protected by SARA may otherwise be protected through provincial legislation. In Ontario, provincial designations of species at risk are protected under the *Ontario Endangered Species Act* (OESA). Both Acts use the same designation categories, starting with the greatest concern; extirpated, endangered, threatened, and special concern. A geographic search was conducted through the Ontario MNR Natural Heritage Information Centre (NHIC). The EC data identifies the long-term species presence in a given region based on their range and may include species that are no longer present. The NHIC database records actual observations of species.

In the greater region surrounding the Dixie Road study area, which is located within the Great Lakes-St. Lawrence Forest Ecoregion where 97 species are listed in all categories, a total of sixteen species of plants and animals have been identified from the records (see **Table 1** below). It should be noted that the listed species represent extremely limited populations which have only been observed in a few specific localities, often many years ago.

None of the listed species were observed during any site visit. Although there is some likelihood that one or more of the species identified below may be present in the type of habitat offered within the green space limits of the study area (e.g. redside dace, which has been recorded in Kilmanagh Creek), these green spaces are not situated within the work area nor are they situated immediately adjacent to the work area excepted in the vicinity of Kilmanagh Creek (the north project limit) where the proposed work is limited

**Table 1 – OESA Listed Species of Plants and Animals Potentially in the Vicinity of the Dixie Road Study Area**

| | ***Common Name*** | ***Scientific Name*** |
|---|---|---|
| ***Fish*** | | |
| | Redside dace | *Clinostomas elongatus* |
| | American eel | *Anquilla rostrata* |
| ***Mammals*** | | |
| | Eastern Cougar | *Puma concolor* |
| | Grey Fox | *Urocyon cinereoargenteus* |
| ***Reptiles*** | | |
| | Blandings turtle | *Eyidoidea blandingii* |
| ***Insects*** | | |
| | Rapids clubtail | *Gomphus quaricolor* |
| ***Birds*** | | |
| | Whip-poor-will | *Caprimlugus vociferus* |
| | Chimney swift | *Chaetura pelagica* |
| | Common nighthawk | *Chordeiles minor* |
| | Olive sided flycatcher | *Contopus cooperi* |
| | Henslow's sparrow | *Ammodramus henslowii* |
| | Least Bittern | *Ixobryhcus exilis* |
| | Horned grebe | *Podiceps auritus* |
| | Bobolink | *Dolichonyx oryzivorus* |
| ***Herbaceous Plants*** | | |
| | American Ginseng | *Panax quinquefolius* |
| ***Trees*** | | |
| | Butternut | *Juglans cinerea* |

## 4.0 PROPOSED WORKS, POTENTIAL IMPACTS OF CONSTRUCTION AND RECOMMENDED MITIGATION MEASURES

Significant localized disturbances can be expected to accommodate roadway improvements. Impacts will include vegetation removal, sediment transport and deposition as a result of grading/ground exposure and excavation, dewatering impacts to groundwater/receiving waterbodies from excavation and grading areas and potential interference of fish habitat as a result of culvert extension/replacement.

The roadway cross section of Dixie Road will change from a rural section two lane paved roadway with gravel shoulder and ditches on each side just north of the Campbell's Cross tributary/Kilmanagh Creek to a four lane urban cross section with sidewalks on both sides, curb and gutter and full underground servicing to the south. Roadway improvement works along Dixie Road at Kilmanagh Creek do not require the existing culvert to be extended. Although no in-water works are required, fish habitat disturbances ***must*** be avoided due to the presence of endangered species (redside dace). Road related works in the vicinity of the culvert must be designed to minimize impacts to fish and fish habitat and permits will be required from both TRCA (Work Permit) and possibly MNR (OESA Permit) for any construction related activities adjacent to any of the identified watercourse crossings. Detailed site restoration plans will be necessary to enhance riparian habitats.

Culvert extensions/new lengthened culvert will be required at Crossing 2. This channel connects directly with Kilmanagh Creek less than 1 km downstream and an environmental protection plan will require implementation to ensure maintenance and enhancement of water quality and associated riparian habitats.

At Crossing 3 the roadway is widened to six lanes with the majority of widening to the west. The West Humber Tributary twin culvert will require extension to the east and west or full replacement (likely due to pipe damage). It appears all roadside vegetation to the north and south on the west side will be lost. An environmental management plan with an emphasis on erosion and sediment controls will be essential at this location.

At Mayfield Road Dixie Road will have six lanes plus median and sidewalks. Turning lanes will extend onto Mayfield, both east and west of the intersection. Crossing 4 on an Etobicoke Creek tributary is within the reconstruction zone and this culvert will require extension to the north and south. Again, an environmental management plan with a particular emphasis on erosion and sediment controls will be required. Crossing 5 is also situated within the reconstruction zone but no culvert improvements are required at this crossing.

The proposed improvements at each watercourse location as well as the anticipated environmental impacts and proposed mitigation at each site are summarized in the following table, with further details regarding the environmental protection plans provided below:

| Watercourse Crossing Location | Existing Structure | | Proposed Work | Anticipated Environmental Impacts | Proposed Mitigation |
|---|---|---|---|---|---|
| | Type | Size | | | |
| West Humber Tributary / Kilmanagh Creek Crossing 1* (Station 16+420) | Concrete Culvert | 5.5 m x 3 m | • No changes | • None | • Although no in-water works are required, fish habitat disturbances *must* be avoided due to the presence of endangered species (redside dace)<br>• Standard erosion and sediment controls for adjacent road improvement work |
| Kilmanagh Creek Tributary Crossing 2* (Station 16+280) | CSP | 800 mm diameter | • Culvert replacement / extension to west (800 mm diameter) | • No net impacts to fish and fish habitat | • Implement environmental protection plan to ensure maintenance and enhancement of water quality and associated riparian habitats |
| West Humber Tributary Crossing 3* (Station 15+910) | Twin CSPs | 1.2 m diameter | • Culvert replacement / extension to east and west (3.6 m x 1.2 m) | • No net impacts to fish and fish habitat | • Implement environmental protection plan with emphasis on erosion and sediment control |
| Etobicoke Creek Tributary Crossing 4* (East of Dixie Rd on Mayfield Rd) | Culvert | 600 mm diameter | • Culvert extension to north and south (600 mm diameter) | • No net impacts to fish and fish habitat | • Implement environmental protection plan with emphasis on erosion and sediment control |
| Etobicoke Creek Tributary Crossing 5* (West of Dixie Rd on Mayfield Rd) | Culvert | 750 mm diameter | • No changes | • None | • Standard erosion and sediment controls for adjacent road improvement work |

The MNR/TRCA Humber River Fisheries Management Plan must be adhered to, particularly emphasizing the need to protect surface water quality through implementation of stormwater best management practices both during construction and to address long term management objectives. Similarly, the Ministry of Environment has emphasized the need to address ecosystem protection and restoration as well as impacts specifically to surface and groundwater, air quality and contamination.

The following measures are recommended for implementation to address the anticipated components of related construction activities, which have the potential to negatively effect aquatic and terrestrial environment and will require management. They should form major components of a future environmental protection plan associated with roadway reconstruction, particularly at culvert crossing locations, including:

- All in-water construction to recognize the following timing windows: July 1st to September 15th for the Humber River Watershed and July 1st to March 31st for the Etobicoke Creek Watershed.

- The establishment of erosion/sediment controls at construction sites to enclose utility excavations and exposed ground for pavement widenings to prevent migration of sediments towards any of the tributary channels. Erosion control fencing should be placed around all ongoing construction activity areas as well as at adjacent locations where supplies or excavated materials and imported fills may be temporarily stored. Fencing is to be checked routinely for effectiveness and regularly cleared of silt accumulation to ensure the integrity of erosion prevention/sediment containment measures. Areas of exposed soil, especially newly graded areas that cannot be immediately stabilized with the final surface treatments are to be treated with straw mulch, erosion blanket, sod or hydroseed, depending on the specific circumstances. Additional protective measures may be necessary at culvert locations. Design plans within regulated areas are to follow ESC guidelines within the following document *Erosion and Sediment Control Guideline for Urban Construction (2006).*

- The possibility of dewatering for utilities placement has the potential to introduce sediments to the local watercourses. Methods must be identified for isolating construction activities from aquatic habitats and suitable methods must be developed for reintroduction of dewatering effluent to the watercourse without impact. Where it becomes necessary to dewater excavation areas, effluent should be directed over grassed areas. Filter bags must be attached to pump outlets, which are to be located no closer than 30 m from any water body. Settling ponds, swales and check dams and/or any other measures must be incorporated as necessary to prevent sedimentation of the adjacent waterbodies. A Permit to Take Water (PTTW) may be required from the Ministry of the Environment.

- Although no rare species or outstanding specimen trees were observed, a tree inventory of the study area corridor should nevertheless be undertaken at the commencement of the Detail Design phase on appropriate mapping that identifies individual trees and shrubs in order to accurately determine vegetation removal requirements. Any removal of trees and shrubs must be minimized given the limited vegetation cover. Approved vegetation clearing should only be undertaken before the onset of the avian breeding season, as per the federal *Migratory Birds Act.* Tree cutting should only be permitted after August 1 and before May 1 to prevent destruction of migratory bird nests. Upon the completion of construction disturbed areas should be replanted with site-appropriate native, indigenous trees and shrubs. An overall site landscaping plan will be prepared, to include replacement trees and shrubs as

well as specific riparian enhancement plantings. Snow fencing must be utilized to protect any existing vegetation and to delineate areas not to be disturbed by construction activities.

- Operating, refuelling and maintenance of construction equipment and the handling and storage of toxic materials (e.g., fuel, lubricants, form oils, paints, wood preservative, and other chemicals) must be carried out in such a way as to avoid contamination of soils, groundwater and surface waters. Temporary materials and equipment storage locations must be approved. Measures must be in place to reduce the risk of spills and to minimize impacts of accidental spills during construction including a contingency plan ready for immediate implementation that includes immediate reporting of incidents to MOE's Spills Action Centre and the Region of Peel's Environmental Control Group. In addition, there must be adequate measures to prevent or capture and contain any debris and spills resulting from construction activities. All such measures and procedures will conform to pertinent provincial requirements.

- The implementation of stormwater quality best management practices is recommended to accommodate new pavement surface areas. As well, opportunities to retrofit existing roadway surfaces and direct runoff to new stormwater quality treatment facilities is urged to aid in surface water quality improvement (as per the West Humber Fish Management Plan).

- As previously discussed, there is a possibility, however remote, of one or several of the identified SAR species occurring within or adjacent to construction locations. Mitigation measures must consider this possibility. No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species as identified in the provincial *Endangered Species Act*. Management options (e.g. through site, timing or design changes) to minimize, reduce or control adverse effects include the design of compensatory or mitigation measures and the implementation of environmental effects monitoring if required to avoid destruction, injury or interference with the species, its residence and/or its habitat.

## 5.0 CUMULATIVE EFFECTS

A preliminary cumulative effects review has been undertaken following the principles of identification of environmental elements, identification of potential impacts and consideration of interactions on significant site features (fish, wildlife, vegetation, SAR) to ascertain the residual and cumulative effects associated with widening of Dixie Road north of Mayfield Road. The results of this review determined both the residual and cumulative effects to be negligible as described below, based on the mitigation measures proposed. Roadway improvements are not expected to result in significant residual adverse environmental effects.

*Aquatic Habitat (fish and fish habitat)*

Roadway improvements are not anticipated to result in significant cumulative effects to aquatic habitat at the Humber River and Etobicoke Creek tributary crossings. While there may be direct impacts at the construction sites due to land clearing and infrastructure placement, there can be new and important benefits to fish habitat with opportunities for site enhancement through mitigation measures (e.g. riparian plantings) and improvements to local water quality (e.g. implementation of roadway stormwater management BMPs). There should be a goal of net environmental benefit established by all players through the various phases of roadway improvements. No significant adverse cumulative effects to aquatic habitats are therefore anticipated.

*Terrestrial Habitat (vegetation, wildlife, SAR)*

The project is not anticipated to result in significant cumulative effects to terrestrial habitat. There will be significant removals of existing trees and shrubs to accommodate the new facilities. Most plantings, however, are young, locally common specimens that can easily be replaced at a ratio and species composition designed to enhance terrestrial habitats. Vegetation removals will affect local terrestrial habitats for only a limited time period (at a non-critical season) and it is not anticipated that these activities will affect the regional composition of wildlife habitat or significant vegetative features in the larger area. Replanting plans must be in place for the entire roadway corridor length and riparian plantings will mitigate vegetation removals near waterbodies and enhance connectivity opportunities. No significant adverse cumulative effects are anticipated.

*Water Quality (groundwater, surface water and hydrology)*

Proposed stormwater facilities are not anticipated to result in significant impacts on water quality during construction given the controls on the management of water flowing or residing in the area, the effective implementation of erosion and sediment control measures, spill contingencies and the implementation of best management practices for construction in regulated areas. An objective of the project is to improve stormwater quality in the longer term following completion of construction. Therefore, no significant adverse cumulative effects to water quality are anticipated.

# APPENDIX 1

## Watercourse Crossing Data Sheets – Kilmanagh Creek and West Humber tributary

**GENERAL INFORMATION**

| PROJECT #: | PROJECT DESCRIPTION: | DAY: | MONTH: | YEAR: |
|---|---|---|---|---|
| | | | | |

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

| COLLECTORS: | WEATHER CONDITIONS: | TIME STARTED: | TIME FINISHED: |
|---|---|---|---|
| | | | |

PHOTOS NUMBERS AND DESCRIPTIONS:

**LOCATION**

| NAME OF WATERBODY: | DRAINAGE SYSTEM: | CROSSING #: | STATION #: |
|---|---|---|---|
| | | | |

LOCATION OF CROSSING:

| UTM EASTING & NORTHING: | MTO CHAINAGE: |
|---|---|
| TOWNSHIP: | MNR DISTRICT: |

**LAND USE AND POLLUTION**

| SURROUNDING LAND USE: | SOURCES OF POLLUTION: |
|---|---|
| | |

**EXISTING STRUCTURE TYPE**

| Bridge O | Box Culvert O | Open Foot Culvert O | CSP O | N/A O |
|---|---|---|---|---|

Other O Describe: Size (w x h) m2

**SECTION TYPE AND MORPHOLOGY**

| SECTION IDENTIFIER: | SECTION LOCATION: (include on habitat map) |
|---|---|
| | |

| TYPE: | Stream / river | Channelized | Permanent | Intermittent | Ephemeral | ASSOCIATED WETLAND: |
|---|---|---|---|---|---|---|
| | O | O | O | O | O | |

| TOTAL SECTION LENGTH (m): | CURRENT VELOCITY (m/s): |
|---|---|
| | |

| SUB-SECTION(S) | Run | Pool | Riffle | Flats | Inside culvert | Other |
|---|---|---|---|---|---|---|
| | O | O | O | O | O | |
| Percentage of area | | | | | | |
| mean depth wetted (m) | | | | | | |
| mean width wetted (m) | | | | | | |
| Mean bankfull width (m) | | | | | | |
| Mean bankfull depth(m) | | | | | | |
| Substrate | | | | | | |

| Bedrock Br | Boulder Bo | Cobble Co | Gravel Gr | Sand Sa | Silt Si | Clay Cl | Muck Mu | Detritus D |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

**BANK STABILITY**

| | Stable | Slightly Unstable | Moderately Unstable | Unstable |
|---|---|---|---|---|
| Left Upstream Bank | Ø | O | O | O |
| Right Upstream Bank | Ø | O | O | O |

**HABITAT**

| IN-STREAM COVER (% surface area): | Undercut banks | Boulders | Cobble | Large Woody Debris Instream / Overhanging | Organic debris | Vascular plants Instream / Overhanging | None |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| SHORE COVER (% stream shaded): | 100 – 90 % | 90 – 60% | 60- 30% | 30 – 1% | None |
|---|---|---|---|---|---|
| | O | O | Ø | O | O |

| VEGETATION TYPE (%): | Submergent | Floating | Emergent | None |
|---|---|---|---|---|
| Predominant Species | | | | |

| MIGRATORY OBSTRUCTIONS: | None | Seasonal | Permanent |
|---|---|---|---|
| | | | |

| POTENTIAL CRITICAL HABITAT LIMITING: | Spawning | Evidence of Groundwater | Other |
|---|---|---|---|
| | | | |

**POTENTIAL ENHANCEMENT OPPORTUNITIES:**

**COMMENTS :**

Additional Notes Appended? O No O Yes number of pages _____

| GENERAL INFORMATION | | | | |
|---|---|---|---|---|
| PROJECT #: | PROJECT DESCRIPTION: | DAY: | MONTH: | YEAR: |
| COLLECTORS: | | TIME STARTED: | TIME FINISHED: | |
| WEATHER CONDITIONS: | SURFACE CONDITIONS (if applicable): | | | |
| | Calm O | Rippled O | Wavy O | Rough O |

| GENERAL LOCATION | |
|---|---|
| NAME OF WATERBODY: | LOCATION OF STATION: |
| TOWNSHIP: | MNR DISTRICT: |

| SAMPLING LOCATIONS AND WATER CHEMISTRY | | | | | | |
|---|---|---|---|---|---|---|
| LOCATION: | LENGTH (m) | AIR TEMP. (°C) | pH | DISSOLVED OXYGEN (mg/L) | WATER TEMP (°C) | CONDUCTIVITY (µS/cm) |
| Upstream | | | | | | |
| Downstream | | | | | | |
| Culvert / Hwy ROW | | | | | | |

| WATER COLOUR: | Colourless O | Yellow/brown O | Blue/green O | Turbid O | Other O |
|---|---|---|---|---|---|

| GEAR | | |
|---|---|---|
| ELECTROFISHER: O | | |
| Length (m): | Settings: | Seconds: |
| NETS and TRAPS: | | |
| MINNOW TRAP: O # | DIP NET O | TRAP NET O |
| SEINE: O | GILL O | OTHER O specify |
| HAULS (#): | Period Of Time (24 hour clock): | |
| | Set Time | Clear time |
| LENGTH (m): | MESH SIZE: | DEPTH OF CAPTURE: |
| | Smallest (cm): Largest (cm): | Minimum (m): Maximum (m): |

| SAMPLE COLLECTION | | | | | |
|---|---|---|---|---|---|
| FISH KEPT? O Yes O No | # OF BAGS | PRESERVATIVE: | | | |
| | | Formalin O | Frozen O | Alcohol O | Other O |

| COMMENTS: |
|---|
| |
| Additional Notes Appended? o No o Yes number of pages _____ |

**CAPTURE INFORMATION**

**PROJECT NO.:** Dixie Road Pond 6A

**STATION NO.:** 1 West Humber, River fork

| NO. | SCIENTIFIC NAME / COMMON NAME | PHYSICAL CONDITION | | TOP PREDATOR | |
|---|---|---|---|---|---|
| | | # fish with blackspot | # fish with lesions, tumours, maturity etc. | Length (mm) F= total fork or L = total length | AGE CLASS YOY / Adult |
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Circle number if a sample was kept

PAGE _____ of _____ Number all pages

| SECTION IDENTIFIER: | SECTION LOCATION: | SECTION LENGTH (m): | SCALE (cm / m): |
|---|---|---|---|
| | | | |


PROJECT #:

MAPPER:

NAME OF WATERBODY:

CROSSING #:

STATION #:

DATE: DD-MMM-YY

*LEGEND*

10d depth (cm)
6w width

➡ Riffle
Run/Glide
Pool
Island/Bar

Fine Substrate
### Gravel Substrate

oOooO Cobble /Boulder
* * * Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
////// Eroded Bank

XXX Riprap / Other Stabilization

Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
Culvert

PROFILE: Horz. Scale Vert. Scale

| GENERAL INFORMATION | | | | |
|---|---|---|---|---|
| PROJECT #: | PROJECT DESCRIPTION: | DAY: | MONTH: | YEAR: |

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

| COLLECTORS: | WEATHER CONDITIONS: | TIME STARTED: | TIME FINISHED: |
|---|---|---|---|
| | | | |

PHOTOS NUMBERS AND DESCRIPTIONS:

| LOCATION | | | |
|---|---|---|---|
| NAME OF WATERBODY: | DRAINAGE SYSTEM: | CROSSING #: | STATION #: |
| | | | |

LOCATION OF CROSSING:

| UTM EASTING & NORTHING: | MTO CHAINAGE: |
|---|---|
| TOWNSHIP: | MNR DISTRICT: |

| LAND USE AND POLLUTION | |
|---|---|
| SURROUNDING LAND USE: | SOURCES OF POLLUTION: |

| EXISTING STRUCTURE TYPE | | | | |
|---|---|---|---|---|
| Bridge O | Box CulvertO | Open Foot Culvert O | CSP O | N/A O |

Other O Describe Size (w x h) m2

| SECTION TYPE AND MORPHOLOGY | |
|---|---|
| SECTION IDENTIFIER: | SECTION LOCATION: (include on habitat map) |

| TYPE: | Stream / river | Channelized | Permanent | Intermittent | Ephemeral | ASSOCIATED WETLAND: |
|---|---|---|---|---|---|---|
| | O | O | O | O | O | |

| TOTAL SECTION LENGTH (m): | CURRENT VELOCITY (m/s): |
|---|---|
| | |

| SUB-SECTION(S) | Run | Pool | Riffle | Flats | Inside culvert | Other |
|---|---|---|---|---|---|---|
| | O | O | O | O | O | |
| Percentage of area | | | | | | |
| mean depth wetted (m) | | | | | | |
| mean width wetted (m) | | | | | | |
| Mean bankfull width (m) | | | | | | |
| Mean bankfull depth(m) | | | | | | |
| Substrate | | | | | | |

| Bedrock Br | Boulder Bo | Cobble Co | Gravel Gr | Sand Sa | Silt Si | Clay Cl | Muck Mu | Detritus D |
|---|---|---|---|---|---|---|---|---|

**BANK STABILITY**

| | Stable | Slightly Unstable | Moderately Unstable | Unstable |
|---|---|---|---|---|
| Left Upstream Bank | O | O | O | O |
| Right Upstream Bank | O | O | O | O |

**HABITAT**

| IN-STREAM COVER (% surface area): | Undercut banks | Boulders | Cobble | Large Woody Debris<br>Instream<br>Overhanging | Organic debris | Vascular plants<br>Instream<br>Overhanging | None |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| SHORE COVER (% stream shaded): | 100 – 90 % | 90 – 60% | 60 - 30% | 30 – 1% | None |
|---|---|---|---|---|---|
| | O | O | O | O | O |

| VEGETATION TYPE (%): | Submergent | Floating | Emergent | None |
|---|---|---|---|---|
| Predominant Species | | | | |

| MIGRATORY OBSTRUCTIONS: | None | Seasonal | Permanent |
|---|---|---|---|
| POTENTIAL CRITICAL HABITAT LIMITING: | Spawning | Evidence of Groundwater | Other |

**POTENTIAL ENHANCEMENT OPPORTUNITIES:**

**COMMENTS :**

Additional Notes Appended? O No O Yes number of pages _____

| GENERAL INFORMATION | | | | |
|---|---|---|---|---|
| PROJECT #: | PROJECT DESCRIPTION: | DAY: | MONTH: | YEAR: |
| COLLECTORS: | | TIME STARTED: | | TIME FINISHED: |
| WEATHER CONDITIONS: | SURFACE CONDITIONS (if applicable): Calm O | Rippled O | Wavy O | Rough O |

| GENERAL LOCATION | |
|---|---|
| NAME OF WATERBODY: | LOCATION OF STATION: |
| TOWNSHIP: | MNR DISTRICT: |

**SAMPLING LOCATIONS AND WATER CHEMISTRY**

| LOCATION: | LENGTH (m) | AIR TEMP. (°C) | pH | DISSOLVED OXYGEN (mg/L) | WATER TEMP (°C) | CONDUCTIVITY (µS/cm) |
|---|---|---|---|---|---|---|
| Upstream | | | | | | |
| Downstream | | | | | | |
| Culvert / Hwy ROW | | | | | | |

| WATER COLOUR: | Colourless O | Yellow/brown O | Blue/green O | Turbid O | Other O |
|---|---|---|---|---|---|

**GEAR**

ELECTROFISHER: O

| Length (m): | Settings: | Seconds: |
|---|---|---|

NETS and TRAPS:

| MINNOW TRAP: O # | DIP NET O | TRAP NET O |
|---|---|---|
| SEINE: O | GILL O | OTHER O specify |
| HAULS (#): | Period Of Time (24 hour clock): | |
| | Set Time | Clear time |
| LENGTH (m): | MESH SIZE: | DEPTH OF CAPTURE: |
| | Smallest (cm): Largest (cm): | Minimum (m): Maximum (m): |

**SAMPLE COLLECTION**

| FISH KEPT? | # OF BAGS | PRESERVATIVE: | | | |
|---|---|---|---|---|---|
| O Yes O No | | Formalin O | Frozen O | Alcohol O | Other O |

**COMMENTS:**

Additional Notes Appended? o No o Yes number of pages _____

**CAPTURE INFORMATION**

PROJECT NO.: Pickerel R. EA

STATION NO.: 2 Mainstem

| NO. | SCIENTIFIC NAME / COMMON NAME | PHYSICAL CONDITION | | TOP PREDATOR | |
|---|---|---|---|---|---|
| | | # fish with blackspot | # fish with lesions, tumours, maturity etc. | Length (mm) F= total fork or L = total length | AGE CLASS YOY / Adult |
| | | | | | |
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Circle number if a sample was kept

PAGE 1 of 1 Number all pages

| SECTION IDENTIFIER: | SECTION LOCATION: | SECTION LENGTH (m): | SCALE (cm / m): |
|---|---|---|---|
| | | | |


PROFILE: Horz. Scale Vert. Scale

PROJECT #:

MAPPER:

NAME OF WATERBODY: Silverwood Creek

CROSSING #:

STATION #:

DATE: DD-MMM-YY

*LEGEND*

10d depth (cm)
6w width

→ Riffle
⇨ Run/Glide
◯ Pool
▒ Island/Bar

Fine Substrate
### Gravel Substrate

oOooO Cobble /Boulder
* * * Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

◯ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
-------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

# APPENDIX 2

# TRCA – excerpts from Humber River Fisheries Management Plan (2004) and Redside dace description

# Humber River Fisheries Management Plan

A cooperative resource management plan developed by the
Ontario Ministry of Natural Resources
and the
Toronto and Region Conservation Authority

*October 2004*

Canadian Heritage Rivers System

Le Réseau des rivières du patrimoine canadien

Correct citation for this publication:

Clayton, J., Hayes K., Heaton, M. G. and, Lawrie, D. 2004. Humber River Fisheries Management Plan. Published by the Ontario Ministry of Natural Resources and the Toronto and Region Conservation Authority.

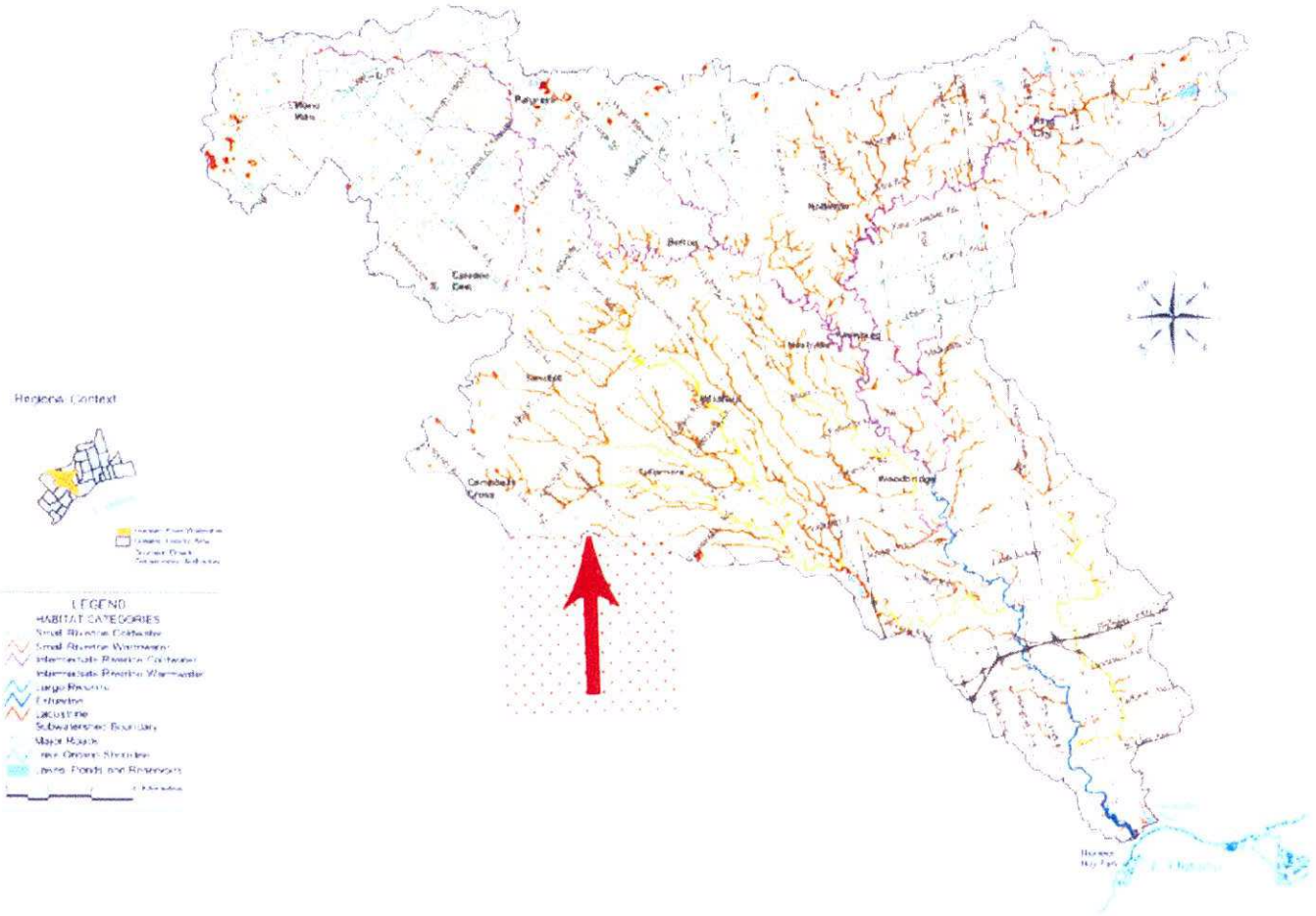




Figure 22. **The locations of the aquatic habitat categories in the Humber River Watershed.**

## 5.1 Small Riverine Coldwater Habitat

Watercourses in this habitat category have drainage areas less than 13.5 $km^2$. This primarily includes first and second order tributaries, although a few third order watercourses do fall into this group. Most of these watercourses begin on the Niagara Escarpment and Oak Ridges Moraine where coarse soils predominate and allow for greater infiltration and groundwater discharge to the stream. Some of these watercourses will be intermittent but the majority will have permanent flow. They also have relatively stable flows because of large groundwater inputs, often greater than 20% of average annual flow. Groundwater inputs also help to maintain continually low water temperatures.

Even though Cold Creek, which joins the Main Humber River downstream from Bolton, and Purpleville Creek, which drains into the East Humber River, are underlain by mainly 'C' soils with low infiltration rates, they both contain small riverine coldwater habitats. They are classified as small riverine coldwater habitat because they currently support trout and they have high baseflows, likely due to inputs from a regional aquifer.

This habitat category is also found in the Centreville Creek sub-basin and the tributary of the West Humber River flowing through Campbells Cross.

Historically, 31 fish species have been found in this habitat category, four of which are introduced (Table 35). Atlantic salmon likely used these watercourses to spawn, or for feeding as juveniles during their first two years. Overfishing, pollution, habitat destruction and the construction of dams and weirs are all reasons for the extirpation of this species from Lake Ontario in the late 1800's. Today, barriers still prevent salmon and trout introduced into Lake Ontario from accessing these watercourses. In 2001, 20 species were found, one of which is introduced. Based on a maximum drainage area of 13.5 $km^2$, the number of native species expected at a single location in this habitat category ranges from six to nine, with more species expected in the larger drainage areas. At one station, thirteen species were found, which is more than expected.

Five sensitive species are found in this habitat category. American brook lamprey, brown and brook trout, redside dace and mottled sculpin. Redside dace is considered a Species of Special Concern by COSEWIC (Mosquin et al., 1995) and provincially Threatened by COSSARO. American brook lamprey, northern redbelly dace, rainbow darter, and brassy minnow are listed as a Group 2 Intermediate – Priority Candidate species and emerald shiner is listed as a Group 3 Lower - Priority Candidate species by COSEWIC.

**Table 25: Historic and Present Fish Species Found in Small Riverine Coldwater Habitat.**

| HISTORICALLY FOUND | FEEDING STRATEGY* | PRESENTLY FOUND** | HISTORICALLY FOUND | FEEDING STRATEGY | PRESENTLY FOUND |
|---|---|---|---|---|---|
| American brook lamprey [3] | C, H | X | Blacknose dace | I | X |
| Rainbow trout [3] | P, I | | Longnose dace | I | |
| Atlantic salmon | P, I | | Creek chub | I, O, P | X |
| Brown trout [3] | P, I | X | Pearl dace | I | |
| Brook trout | P, I | X | Brown bullhead | O | |
| Central mudminnow | I | | Brook stickleback | I | X |
| White sucker | I | X | Rock bass | I, P | |
| Northern hog sucker | I | X | Pumpkinseed | I | X |
| Northern redbelly dace [5] | O, I | X | Smallmouth bass | C, P, I | |
| Redside dace [6] | I | X | Largemouth bass | I, P | |
| Brassy minnow [5] | H | X | Rainbow darter [5] | I, C | X |
| Common shiner | I, O | X | Iowa darter | I, C | |
| Blackchin shiner | I | | Fantail darter | I | |
| Blacknose shiner | I | | Johnny darter | I | X |
| Emerald Shiner [4] | I, H | X | Golden Shiner | O | X |
| Fathead Minnow | O | X | Mottled sculpin | I | X |
| Bluntnose minnow | O | X | | | |

* - C - Crustaceans, H - herbivore, I - insectivore, O - omnivore, P - piscivore

** - present data were collected from six stations

[3] - introduced

[5] - nationally Species of Special Concern (COSEWIC) and provincially Threatened (COSSARO)

[3] - Group 2 - Intermediate Priority Candidate (COSEWIC)

[4] - Group 2 - Lower Priority Candidate (COSEWIC)

IBI analysis was performed on six stations in this habitat category, with scores ranging from 25 to 37 and a median score of 30, or "good" stream quality. All of the stations were found in either the Upper Main, West or East Humber River subwatersheds. The station with the lowest IBI score in this habitat category was found in the East Humber River subwatershed.

Examining IBI sub-indices individually indicates that the number of native species caught at each station closely matches the expected number of native species for 50 % of stations (Table 25). A low percentage of stations scored high for the next two species richness sub-indices, indicating a lack of specialists. Fifty per cent of the stations scored high for the number of sucker/catfish species. Only 50 % of stations scored high with respect to the presence or absence of brook trout while 100% scored high in percent of sample as *Rhinichthys sp.* This suggests that these streams are not highly urbanized and contain a relatively intact riparian buffer. Analysis of the trophic composition sub-indices suggest that omnivores do not dominate the fish communities and that there is a lack of piscivorous species. Finally, 50 % of stations scored high in the abundance sub-indices.

for recovery within the watershed, rehabilitation requirements need to be integrated into the implementation of development proposals.

**Redside Dace**

The redside dace is generally uncommon, however, it was once locally abundant throughout the Ontario range. Recent collections, though, reveal a significant decline in the distribution within Ontario (Holm and Crossman, 1986). Only fifty percent of the historical capture sites, surveyed by the Royal Ontario Museum between 1982 and 1985, produced recaptures. Habitat degradation has caused extirpation (local extinction) within several watersheds (McKee and Parker, 1981). Healthy populations still exist in the Rouge and Humber Rivers as well as Fourteen Mile, Sixteen Mile and Bronte Creeks. The redside dace was historically found in the Upper Main, East and West Humber River subwatersheds and were reported as common within the East Humber River during surveys in 1972 (Wainio and Hester, 1973). Since 1984, there have been 31 reported capture sites within the Humber River watershed.

In Ontario, the redside dace inhabits slow moving sections of small headwater streams which have mixtures of stream side shade and pool and riffle habitat (Holm and Crossman, 1986). Pools are used as residence habitat and the upstream end of riffles are used for spawning. Redside dace will spawn over excavations made by creek chub and common shiner. Spawning takes place in late spring when water temperatures reach approximately 18°C. Stream sections with overhanging vegetation, undercut banks and submerged branches and logs are most suitable. Bottom substrates include boulders, rocks, gravel or sand, often with shallow surface covering of detritus or silt (McKee and Parker, 1981). Streams are clear or colourless in conjunction with hard substrates and clear to brown tinged in streams with organic substrates. Redside dace prefer clear water and is sensitive to turbidity, however, redside dace have been found in some streams of moderate turbidity (Holm and Crossman, 1986). Temperatures are usually less than 20 °C and dissolved oxygen concentrations are at least 7 mg/L (McKee and Parker, 1981). Redside dace are also considered moderately sensitive to direct disturbance by human beings and/or domesticated animals, particularly during the spring spawning period (Holm, pers. comm).

Destruction and degradation of habitat have been the major factors in the reduction of redside dace distribution. Changes in stream hydrology, siltation, removal of natural edge cover, channelization and agricultural pollution of streams, and direct disturbance by people and domestic animals in urban and urbanising areas reduces suitable habitat and food sources. The species is now restricted to the headwaters of many streams where it was once widespread.

Protection from harvest, stream hydrology and water quality protection, riparian zone rehabilitation, riparian zone protection, restricting livestock access and mitigation of instream barriers and ponds are seven principle actions for sustaining redside dace within a healthy, diverse fish community. The most stringent instream construction window of July 1st to September 15th is used to protect this species from further decline.

Representatives from the OMNR, TRCA, CVC, Ontario Streams, Department of Fisheries and Oceans, and the ROM have developed a recovery strategy for the redside dace in Ontario. Ontario Streams, on behalf of the Recovery Strategy Team, receives federal and provincial funding to implement the recovery strategy and work on habitat rehabilitation projects to help restore a viable population of redside dace in a significant portion of their historic range in Canada. Further work is underway to monitor distribution, implement habitat rehabilitation

projects and build information resources for the public. For further details on the development of the recovery plan, refer to the redside dace website at http://www.redsidedace.ca.

### Atlantic Salmon

Atlantic salmon were once very abundant in the Humber River. Historical information suggests that the Humber was second in prominence to the Credit River with noted spawning grounds (Dymond, 1965). The first government sawmill was built in 1793 near the location of the present "Old Mill" and probably initiated the demise of this species by blocking the migration of adults on their way to spawning grounds in the upper watershed. By 1824 there were 13 mills on the river and by 1860 there were more than 90 in operation. Stocking managed to sustain a presence of this species up to about 1876 but by 1898, the species had been extirpated from Lake Ontario.

The cumulative effects of early settlement and growth in southern Ontario drastically changed the landscape and the functions of its watersheds. The multitude of dams on the river and its tributaries, loss of forest cover, baseflow reduction, urban and rural pollution, combined with unregulated harvest lead to the demise of the naturally reproducing wild salmon.

Now that the agricultural and timber harvest booms of the early twentieth century are over in the watershe, there has gradually been changing social values in the landscape. The late Dr. E.J. Crossman, Curator of Ichthyology, Royal Ontario Museum, once said "the rivers of Southern Ontario can thank two historical milestones - the invention of electricity and Hurricane Hazel for their recovery". If these events had not occurred, the dams would still be running the mills and people would still be developing the floodplains." Fewer dams, more forest and the protection of valuable headwater areas will eventually restore coldwater habitats in the Humber River. With this change will come the opportunity one day to restore the Atlantic salmon to the watershed, and with it a part of our natural heritage.

### American Eel, Northern Redbelly Dace, American Brook Lamprey, Brassy Minnow, Rainbow Darter, White Perch, Emerald Shiner, Spottail Shiner, and Stonecat

American eel, American brook lamprey, northern redbelly dace, rainbow darter, white perch and brassy minnow have been classified as Group 2 Intermediate Priority, while emerald shiner, spottail shiner, and stonecat have all been classified as Group 3 - Lower Priority Candidates by COSEWIC. It should be noted that white perch is introduced to Ontario and that it is the Quebec, not the Ontario, population that is considered at risk. If it is determined that the Quebec population is not discrete or of national significance the species will, in all likelihood, be dropped from the list (Campbell, 2002). American eel and American brook lamprey are considered species that are 'especially at risk' in Ontario. Candidate species are drawn from numerous scientific sources for consideration of inclusion on the COSEWIC list of species of conservation concern.

The American brook lamprey, northern redbelly dace, rainbow darter, brassy minnow, emerald shiner, spottail shiner, and stonecat were all found in the watershed in 2001. The American eel was last found in the watershed in 1989 and was found near the mouth, while the white perch was last found in 1995.

Barriers, overfishing, pollution and ecological change at an international scale are all considered factors in the apparent decline of the American eel population, to the point where the Great Lakes Fisheries Commission - Lake Ontario has stated that "without management intervention, extirpation of the American eel in the Great Lakes Basin is likely" (GLFC, 2002). Similar stressors are also likely responsible for the reported national decline in the other species. The American brook lamprey was found at 11 stations, brassy minnow was found at 5 stations, rainbow darter was found at 18 stations, northern redbelly dace was found at 6 stations, and the spottail shiner was found at 7 stations in 2001. The relative abundance of these species in recent and historical sampling suggests that they are likely less at risk at a local level than the other listed species.

## 6.3 Consumptive Uses

Consumptive uses include any method of harvesting fish such as angling or baitfish removal and results in the loss of fish from the system. Consumptive uses are one expression of the economic value of the resource and it is important that these opportunities be provided while at the same time protecting the long-term sustainability of the resource.

This section will deal with consumptive uses through regulations, stocking and baitfish harvest recommendations. It recommends angling and harvest regulations and suggested changes to reflect current concerns and fisheries management goals. This section also provides direction regarding fish stocking as a fisheries management tool for re-establishing native species, providing put-and-delayed-take fishing opportunities or population rehabilitation.

### 6.3.1 Fishing

The Humber River watershed has been the focus of native, commercial and sport fishing harvest for centuries. The local Mississauga Indians were known users of the Humber River salmon as late as 1796 (Dymond, 1965).

Historically, Atlantic salmon, brook trout, bass and pike were harvested from its waters for food. Spear fishing for salmon was common during the fall as a source of food and income. Today, consumptive uses are primarily limited to recreational angling, where pesticide and heavy metal contaminates constrain the harvest value for food. Further north into the headwaters of the Humber River, coldwater streams and lakes provide ample opportunities for brown and brook trout, bass and pike. These areas provide better quality angling where fish can be eaten with fewer concerns about contamination.

#### 6.3.1.1 Regulations

Fishing seasons, sanctuaries, methods and limits are regulated by the Ontario Ministry of Natural Resources under the Ontario Fisheries Regulations which fall under the provincial Fish and Wildlife Conservation Act (formerly the Game and Fish Act) and the Federal Fisheries Act. The Fish and Wildlife Conservation Act is used to create different types of fish licences and regulate other aspects of fishing including winter fishing huts. The Fisheries Act is used to regulate fishing seasons, catch and possession limits, size limits, gear types and sanctuaries. Ontario conservation officers and deputy conservation officers are Fishery Officers with the delegated authority to enforce the Fisheries Act.

### 6.7.4 West Humber River Subwatershed

At an area of approximately 200 $km^2$, this subwatershed is the same size as the East Humber River subwatershed and contains 311 km of watercourses. It is the most highly agricultural of all the subwatersheds, with 67% in some form of farming. In most cases, it is field crops such a corn or sorghum that are grown. Other land uses include urban and urbanizing (20%), rural estate (4%) and major greenspace (9%).

This subwatershed lies over the mostly flat Peel Plain, which is made up of highly impermeable clay soils. As a result, water is unable to easily penetrate into the soil and quickly runs across the land's surface. This is particularly evident following the spring melt or a storm event. Many of these watercourses tend to rise and fall quickly following a rain and often dry up or are reduced to standing pools in the summer months. In fact, the ratio of baseflow to average annual flow at Regional Road 107 (formerly Highway 7) and below Claireville Dam is in the order of 1%. At times, the minimum recorded baseflow at these locations is 0 $m^3/s/km^2$, indicating conditions of no flow.

While low or non-existent baseflows are the norm in this subwatershed, one watercourse has enough baseflow to flow year round. Flowing through Campbell's Cross, this tributary is unique in the subwatershed in that it can support a coldwater aquatic community to its confluence with an unnamed tributary west of Goreway Drive and north of Castlemore Road.

This subwatershed has one of the lowest amounts of woody riparian vegetation in the watershed at 28%. This lack of vegetation has further intensified the low infiltration capacity of the clay soils that dominate the area, likely increasing the number and length of the streams that dry up during the summer.

Many of the 17 fish species found in 2001 are considered to be tolerant warmwater species, although some sensitive species like redside dace and rainbow darter are also present. The 17 fish species found is 23 fewer than the 40 found here historically, which included American brook lamprey, blackshin shiner, blacknose shiner, bluegill, bluntnose dace, brassy minnow, brook trout, central stoneroller, common carp, goldfish, iowa darter, longnose dace, mimic shiner, mottled sculpin, northern redbelly dace, pumpkinseed, river chub, river darter, rosyface shiner, sand shiner, smallmouth bass, stonecat, yellow bullhead, and yellow perch.

It is likely that many of these species such as northern redbelly dace, river chub, blackchin shiner and yellow perch still exist in this subwatershed but due to the timing and location of surveys, were not captured. This subwatershed has four aquatic habitat categories - small riverine warmwater, small riverine coldwater, intermediate riverine coldwater, and lacustrine, and the following five management zones:

1. Zone 2 (brook trout and redside dace);
2. Zone 4 (darter species);
3. Zone 5 (lacustrine habitat);
4. Zone 7 (redside dace and darter species);
5. Zone 9 (smallmouth bass and rainbow darter).

Figure 26 and Table 1 provide a summary of rehabilitation priorities for the West Humber River subwatershed.

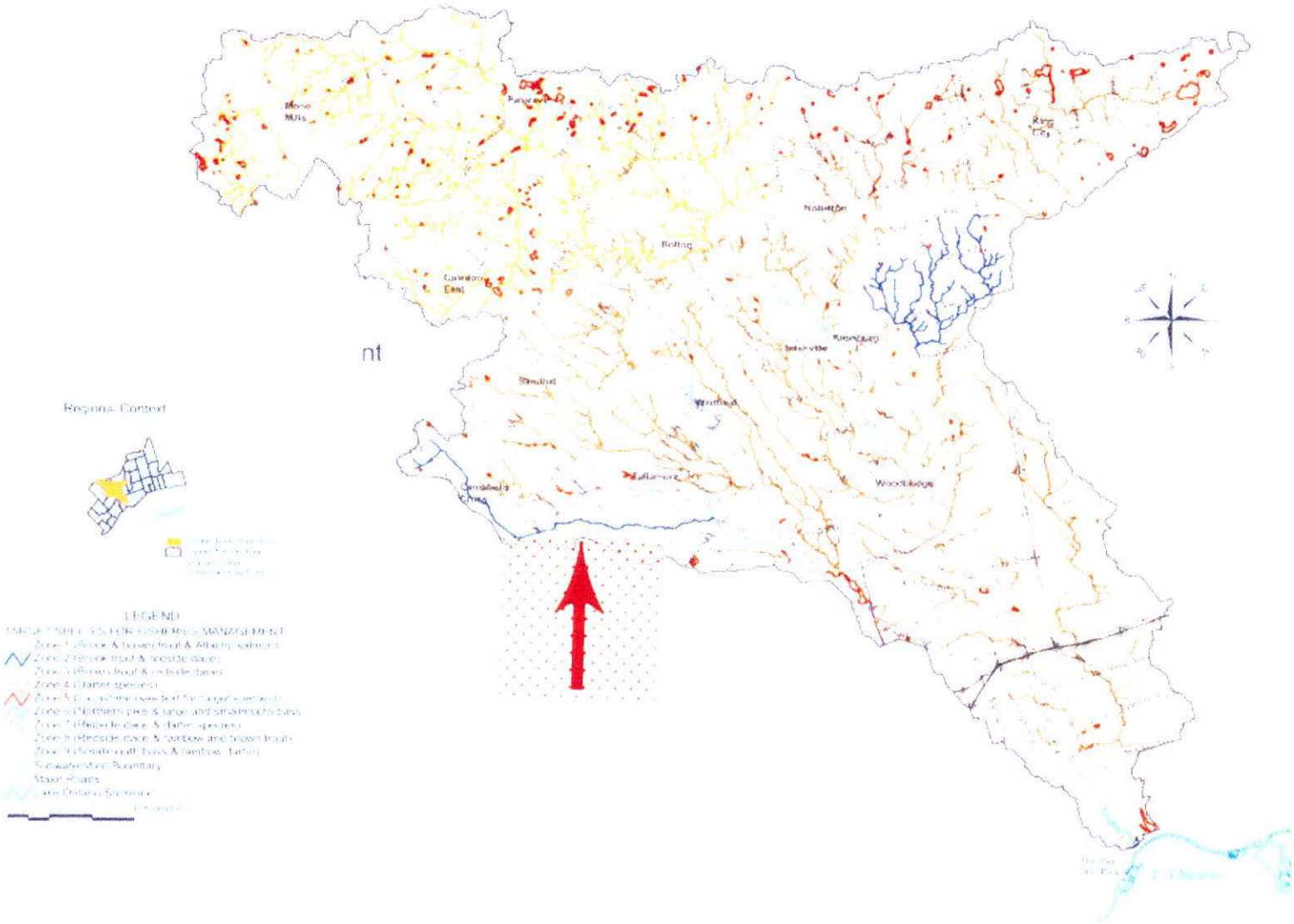



**Figure 25. Management Zones and Target Species for Fisheries Management.**

**Table 41: Rehabilitation Priorities for West Humber River Subwatershed.**

| | MANAGEMENT ZONES | | | | |
|---|---|---|---|---|---|
| | **Zone 2** | **Zone 4** | **Zone 5** | **Zone 7** | **Zone 9** |
| **Approximate Location** | North of Campbell's Cross to confluence west of Goreway Drive | Throughout subwatershed | On-line ponds and Claireville Reservoir | Old School Road south to Steeles Avenue | South of Claireville Reservoir |
| **Stream Order** | First and second | First and second | N/A | Third and fourth | Fourth |
| **Slope** | Low to moderate | Low to moderate | Low | Low to moderate | Low to moderate |
| **Target Species** | Brook trout and redside dace | Darter species | Resident warmwater communities | Redside dace and darter species | Smallmouth bass and rainbow darter |
| **Aquatic Habitat Category** | Small Riverine Coldwater | Small Riverine Warmwater | Lacustrine | Small Riverine Warmwater and Intermediate Riverine Warmwater | Intermediate Riverine Warmwater |
| **Median IBI** | Good | N/A | N/A | Good | N/A |
| **MANAGEMENT DIRECTION** | | | | | |
| **Riparian Zone**: Thermal benefits, erosion stability, habitat creation, and run-off filtration.<br>**Delisting Target:** 75% of watercourse length with woody vegetation. Additional 149.6 km needed. | **High Priority** – private lands along Campbell's Cross tributary. | **High Priority** – primarily private lands; also Claireville CA between Regional Road 107and Steeles Avenue and Albion Creek (identified in Toronto's WWFMMP). | **Low Priority** -efforts to be directed to Claireville CA and private lands. | **High Priority** – primarily private lands; also Claireville Conservation Area between Castlemore Road and Steeles Avenue. | **High Priority** – between confluence of West Humber River and Main Humber River and Claireville Conservation Area ; identified in Toronto's WWFMMP |

| | MANAGEMENT ZONES | | | | |
|---|---|---|---|---|---|
| | **Zone 2** | **Zone 4** | **Zone 5** | **Zone 7** | **Zone 9** |
| **Wetland Creation & Rehabilitation**<br><br>Wetlands - Attenuating run-off and increasing infiltration. Habitat creation. Planting of aquatic vegetation, enhancing spawning habitats.<br><br>**Delisting Target:** 75% of historical area. Additional 693 ha of wetlands | **High Priority** – protect existing wetlands.<br><br>**Medium Priority** – create new wetlands identified in TRCA's Terrestrial Natural Heritage Strategy and recently initiated project to identify sites for wetland creation in the Regions of Peel and York. | **High Priority** – protect existing wetlands.<br><br>**Medium Priority** – create new wetlands identified in TRCA's Terrestrial Natural Heritage Strategy and recently initiated project to identify sites for wetland creation in the Regions of Peel and York; continue existing work at Claireville CA. | **Medium Priority** – create new wetlands identified in TRCA's Terrestrial Natural Heritage Strategy.<br><br>**Low Priority** - Inwater habitat creation and restoration and a quatic plantings. | **High Priority** – protect existing wetlands.<br><br>**Medium Priority** – create new wetlands identified in TRCA's Terrestrial Natural Heritage Strategy and recently initiated project to identify sites for wetland creation in the Regions of Peel and York; continue existing work at Claireville CA. | **High Priority** – protect existing wetlands.<br><br>**Medium Priority** – create new wetlands identified in TRCA's Terrestrial Natural Heritage Strategy. |
| **Habitat Rehabilitation**<br><br>Rehabilitate altered streams. Addition of tree stumps, logs, brush bundles for instream cover.<br><br>**Target:** 150 pieces of large woody material or equivalent per km | **Low Priority** - identify degraded reaches. | **Low Priority** - identity degraded reaches. | **Low Priority** - Inwater habitat creation and restoration. Aquatic plantings. | **Low Priority** - identify degraded reaches. | **Low Priority** - identify degraded reaches. |
| **Water Quantity & SWMP Retrofits**<br><br>**Target:** Maximum 10% total impervious surface in management zone.<br><br>Protect or enhance existing water budget. | **High Priority** – implement recommendations of Brampton Stormwater Retrofit Study.<br><br>**High Priority** – stormwater pond outlets to have bottom draw outlets or sub-surface drainage.<br><br>**High Priority** – protect or enhance existing water budget. | **High Priority** – implement recommendations of Brampton Stormwater Retrofit Study.<br><br>**High Priority** – stormwater pond outlets to have bottom draw outlets or sub-surface drainage.<br><br>**High Priority** – protect or enhance existing water budget. | **High Priority** – protect or enhance existing water budget.<br><br>**Medium Priority** – review operation of Claireville Reservoir water levels in relation to fisheries management interests. | **High Priority** – implement recommendations of Brampton Stormwater Retrofit Study.<br><br>**High Priority** – stormwater pond outlets to have bottom draw outlets or sub-surface drainage.<br><br>**High Priority** – protect or enhance existing water budget. | **High Priority** – implement projects identified in Toronto's WWFMMP.<br><br>**High Priority** – protect or enhance existing water budget. |

| | MANAGEMENT ZONES | | | | |
|---|---|---|---|---|---|
| | **Zone 2** | **Zone 4** | **Zone 5** | **Zone 7** | **Zone 9** |
| **Stream Baseflow**<br><br>**Target:** Protect 60% duration flow through regulatory approvals process. | **High Priority** – determine instream flow requirements for target species.<br><br>**Medium Priority** – maintain or enhance existing baseflow. | **High Priority** – determine instream flow requirements for target species.<br><br>**Medium Priority** – maintain or enhance existing baseflow. | Not applicable. | **High Priority** – determine instream flow requirements for target species.<br><br>**Medium Priority** – maintain or enhance existing baseflow. | **High Priority** – determine instream flow requirements for target species.<br><br>**Medium Priority** – maintain or enhance existing baseflow. |
| **Water Quality**<br><br>Restrict livestock access. Reduce agricultural runoff. Pollution prevention, lot level and conveyance controls, end of pipe controls. | **High Priority** – identify livestock access locations.<br><br>**High Priority** – reduce overland sediment run-off over all construction periods.<br><br>**Medium Priority** – implement best management practices for all land uses. | **High Priority** – identify livestock access locations.<br><br>**High Priority** – reduce overland sediment run-off over all construction periods.<br><br>**Medium Priority** – implement best management practices for all land uses. | **High Priority** - Control waterfowl access to waterbodies. | **High Priority** – identify livestock access locations.<br><br>**High Priority** – reduce overland sediment run-off over all construction periods.<br><br>**Medium Priority** – implement best management practices for all land uses. | **High Priority** – reduce overland sediment run-off over all construction periods.<br><br>**Medium Priority** – implement best management practices for all land uses. |
| **Natural Channel Design** | None identified. | None identified. | Not applicable. | None identified. | **High Priority** – one project identified in Toronto's WWFMMP. |
| **Instream Barriers**<br><br>Mitigate identified barriers or install bottom draw, if appropriate.<br><br>**Delisting Target:** free passage of all native species throughout the subwatershed, except for Claireville Reservoir. | **High Priority** - identify additional barriers and assess stream crossings for fish passage.<br><br>**Medium Priority** – mitigate one barrier on private property annually. | **High Priority** - identify additional barriers and assess stream crossings for fish passage.<br><br>**Medium Priority** – mitigate one barrier on private property annually. | None identified. | **High Priority** - identify additional barriers and assess stream crossings for fish passage.<br><br>**Medium Priority** – mitigate one barrier on private property annually. | **High Priority** - identify additional barriers and assess stream crossings for fish passage.<br><br>**High Priority** – remove one weir and one service line based on Toronto's WWWMMP recommendations. |
| **Angling Regulations and Enforcement** | **Low Priority** – increase enforcement and implement a Fish and Wildlife Guardian Program. | **Low Priority** – increase enforcement and implement a Fish and Wildlife Guardian Program. | **Low Priority** – increase enforcement and implement a Fish and Wildlife Guardian Program. | **Low Priority** – increase enforcement and implement a Fish and Wildlife Guardian Program. | **Low Priority** – increase enforcement and implement a Fish and Wildlife Guardian Program. |

| | MANAGEMENT ZONES | | | | |
|---|---|---|---|---|---|
| | **Zone 2** | **Zone 4** | **Zone 5** | **Zone 7** | **Zone 9** |
| **Public Lands**<br><br>**Target:** All public lands accessible for angling. | Castlemore/Airport Rds (Stephen Llewellyn Trail). | Parks – Lucinda, Carberry, Blue Jay, Ezard, Bellini Valley, Castlemore. | Claireville Reservoir, Indian Line Campground. | Blue Jay Park, Castlegrove Park, Cassin Park, Wildfield Park, Claireville CA. | Summerlea Park, West Humber Parkland, Kipling Heights Park, Watercliffe Park, Garland Park, Ester Lorrie Park, Humber Arboretum, Humberwoods Park. |
| **Species of Conservation Concern** | **High Priority** – implement recommendations of Redside Dace Recovery Strategy.<br><br>**Low Priority** – assess populations of Group 2 and 3 Priority Candidate Species. | **Low Priority** – assess populations of Group 2 and 3 Priority Candidate Species. | None recommended at this time. | **High Priority** – implement recommendations of Redside Dace Recovery Strategy.<br><br>**Low Priority** – assess populations of Group 2 and 3 Priority Candidate Species. | **Low Priority** – assess populations of Group 2 and 3 Priority Candidate Species. |
| **Fish Stocking and/or Transfer** | None recommended. | None recommended. | None recommended. | None recommended. | None recommended. |
| **Baitfish Harvest** | No changes recommended. | No changes recommended. | No changes recommended. | No changes recommended. | No changes recommended. |
| **Non-comsumptive Uses**<br><br>Education, signs, stewardship programs. | **High Priority** – continue outreach education programs associated with Watershed On Wheels. | **High Priority** – continue outreach education programs associated with Watershed On Wheels; golf course stewardship. | **High Priority** – continue outreach education programs associated with Watershed On Wheels, golf course stewardship. | **High Priority** – continue outreach education programs associated with Watershed On Wheels; golf course stewardship. | **High Priority** – continue outreach education programs associated with Watershed On Wheels; implement WWFMMP outreach ideas. |
| **Monitoring** | None recommended at this time. | **High Priority** – conduct aquatic habitat and species surveys at Mayfield Road east and west of Humber Station Road, Old School Road west of Airport Road, Gore Road south of King Road and Bramalea Road north of Mayfield Road (trib downstream of Banty's Roost G.C.). | **High Priority** – identify all on-line ponds.<br><br>**Medium Priority** – assess aquatic communities and habitat in Claireville Reservoir. | **High Priority** – conduct aquatic habitat and species surveys at Countryside Drive east of The Gore Road. | None recommended at this time. |

[1] – those areas currently vegetated with herbaceous vegetation are considered lower priority for restoration than manicured vegetated reaches. This does not mean, however, that opportunities to establish woody riparian vegetation in currently vegetated areas will not be pursued.

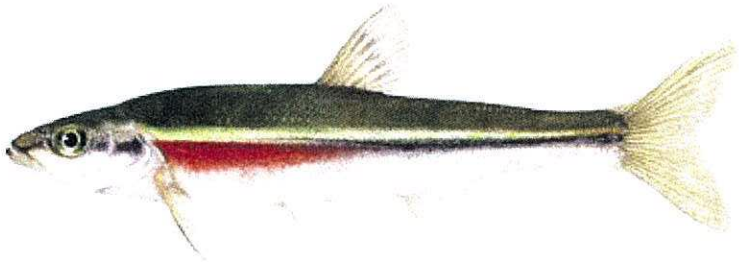
**Species - Details**

**Scientific name:**
*Clinostomus elongatus*
**SARA Status**: Under consideration
**COSEWIC Status:** Endangered (April 2007)
**Region:** Ontario

# The Redside Dace... a Species at Risk in Ontario

This species has been identified as Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). It is currently being considered for listing under the federal *Species at Risk Act* (SARA). Protection is afforded through the federal *Fisheries Act*. If listed under the SARA, it will be afforded additional protection. Under the SARA, a recovery strategy must be developed for this species.

## General Description



*Clinostomus elongatus*

Illustration by E. Edmondson & H. Chrisp (NYSDC)

The Redside Dace (*Clinostomus elongatus*) is a very colourful minnow. It is a member of the carp and minnow family Cyprinidae and has the following characteristics:

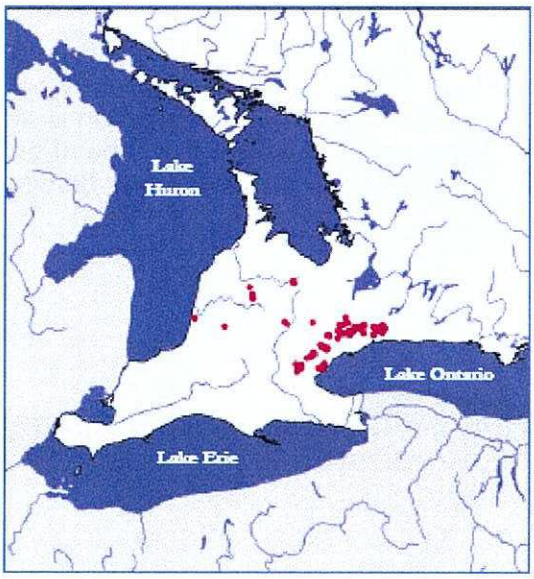
- Large mouth with a protruding lower jaw
- Large pectoral fins in males Relatively small scales (59 to 75 lateral scales)
- Adults develop a wide, bright red stripe along the front half of the body; a bright yellow stripe above extends to near the tail fin
- Colours brighten during the spring and fade during the late summer and fall Males are more brightly coloured than females
- Prior to spawning, males develop tubercles on the pectoral .ns and top of the head
- Maximum length is 12 cm

## Distribution

The Redside Dace has a discontinuous range in North America. In the west, it occurs mainly in Wisconsin with smaller populations in Minnesota, Illinois and Iowa. In the

south, it is found in Kentucky and West Virginia, extending northeastward in a wide band through Ohio, Pennsylvania and north central New York. Its northern extent includes the Lake Superior drainage in the the upper peninsula of Michigan and the north end of Lake Huron in Ontario where it exists in three tributaries. Its Canadian distribution also includes tributaries of western Lake Ontario, the Holland River (Lake Simcoe drainage), and in Irvine Creek (Lake Erie drainage). The Canadian range comprises roughly 5% of its global range.

## Redside Dace Distribution in Canada




### Habitat and Life History

The Redside Dace is a coolwater species found in pools and slow flowing areas of small headwater streams with a moderate to high gradient. Overhanging grasses and shrubs, as well as undercut banks, are an important part of their habitat, as are instream boulders and large woody debris. Substrate is variable and includes silt, gravel and boulders. Fish mature at around two years of age. In May, spawning occurs in shallow riffle areas and eggs are often deposited in the nests of other minnows. There is no parental care; however, the nest-guarding male and the nest itself may provide some protection to the eggs. The lifespan of the Redside Dace is generally four years or less.

### Diet

The Redside Dace is a visual, surface feeder. It often feeds on terrestrial insects, such as adult flies, at the surface of the lake, leaping several cm in the air to catch them. Its large, upturned mouth is well suited to feeding from below the surface.

### Threats

Habitat degradation and loss associated with intensive urbanization is the most important threat to the Redside Dace in Ontario. Contributing factors associated with

urban development include changes in the stream structure, such as channel widening and decreased pool depth, removal of bank vegetation that provides cover, food and moderates water temperature, and siltation. Similarly, intensive agricultural practices, such as row cropping and grazing, compromise water quality and habitat of the Redside Dace

## Similar Species

A number of other minnows such as the Northern Redbelly Dace (*Phoxinus eos*), Finescale Dace (*P. neogaeus*), Blacknose Dace (*Rhinichthys atratulus* species complex), and Pearl Dace (*Margariscus margarita*) also develop a red stripe; however, it extends farther back to the tail.

For more information, visit the SARA Registry Website at www.SARAregistry.gc.ca.

# APPENDIX 3

# Photo Diary – June 29 and December 22, 2010

**<u>Crossing 1</u> – Campbell's Cross Tributary/Kilmanagh Creek (Station 16+420)**

Box culvert inlet (above) and stagnant bypass pond (below) on Campbell's Cross tributary

The water was clear and flowing rapidly along the rock filled bypass channel

View downstream as the channel bends to the south through old field vegetation

The stream flows rapidly through the heavy vegetation

**<u>Crossing 2</u> – Kilmanagh Creek Tributary (Station 16+280)**

The upstream area for this culvert (entrance below) is a landscaped yard in front of this farm.

The downstream flow is directed across the front yard of a residential property on Dixie Road. Cattails occupy the downstream channel. The slightly perched culvert outlet is below

**<u>Crossing 3</u> – West Humber River Tributary (Station 15+910)**

View north (above) and south (below) on Dixie Road approximately mid-way along the study area at watercourse crossing 3. A twin 1.2 m diameter CSP crosses under the roadway at this location

View upstream (above) at the West Humber tributary crossing and at damaged twin culvert inlet (below)

View downstream at the West Humber tributary channel (above)
and partially obstructed culvert outlet (below)

**<u>Crossing 4</u> – Etobicoke Creek Tributary (SE Quadrant Mayfield/Dixie)**


The upstream drainage area of the culvert for this Etobicoke Creek tributary is farm field (above) and the north Mayfield Road ditch (below)

The culvert inlet at the northeast quadrant of Mayfield/Dixie is almost obscured by vegetation

The downstream drainage area also crosses farm field

Again, the culvert outlet is almost obscured by vegetation

**<u>Crossing 5</u> – Etobicoke Creek Tributary (SW Quadrant Mayfield/Dixie)**

The upstream drainage for this tributary is also farm field and roadside ditch

The culvert inlet is in the northwest quadrant in the north Mayfield Road ditch (above). Outlet drainage is directed across a low area of farm field towards the barn (below)