

**3440 Frank Kenny Road
Navan, Ontario**

Fisheries Impact Assessment

Prepared for:

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**October 2016
(Updated March 2022)**

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1.0 INTRODUCTION

In 2016, Bowfin Environmental Consulting Inc. (Bowfin) was retained by J. L. Richards and Associates on behalf of Hydro One Networks Inc. (the proponent) to conduct a Fisheries Impact Assessment (FIA) for a proposed expansion of the existing facility at 3440 Frank Kenny Road. That report is updated here to ensure that it meets the current recommendations.

The proponent is planning to execute phase 2 of their expansion to the existing facility. The site is approximately 2.65 hectares in size and is situated west of Frank Kenny Road, north of Colonial Road. It is in Part of Lot 10 Concession 8 of the Geographic Township of Cumberland, City of Ottawa (Figure 1).

There are two unnamed channels travelling from east to west: one along the south edge of the subject lands and the other along the north. Both are tributaries to Bear Brook and they have been labelled as Tributary 1 (to the south) and the Tributary 2 (to the north). Fish habitat is automatically given a setback of 30 m from the normal high water as outlined in the *Natural Heritage Reference Manual (2005)*. A reduction from the 30 m to 15 m for warm-water systems is permitted if an impact assessment is completed and the findings arrive at the conclusion that no negative impacts to the fish habitat will occur.

Per Section 69 of the City of Ottawa Comprehensive Zoning By-law 2008-250, as amended, the minimum setbacks shall be:

1. 30 m to the normal high-water mark of any watercourse or waterbody, or
2. 15 m to the top of the bank of any watercourse or waterbody, whichever is the greater.

Notwithstanding, flood or erosion control works, or a public bridge or a marine facility may be permitted. Furthermore, buildings or structures subject to plan of subdivision or site plan control approval may be permitted with a different setback as a condition of approval where an Environmental Impact Statement has demonstrated no negative impacts to the natural heritage feature.

The proponent has requested a setback reduction for Tributary 1 to ± 19 m to allow for a new driveway, yard with fence enclosure, and stormwater management system. It is noted that the subject lands are no closer than 15 m from the drain (considered by the Zoning By-law to be a watercourse). The 15 m is not on this proponent's property and will not be altered from its current state. A proposed setback consisting of plantings of 3.0-3.7 m from the property line is proposed which would provide roughly 18-19 m buffer to Tributary 1. No change to the 30 m setback to Tributary 2 is being sought.

The following report provides an assessment of the potential impacts to the fish habitat because of a reduced setback and provides a review of the project with respect to the federal *Fisheries Act*.

Figure 1: Location of the Subject Lands

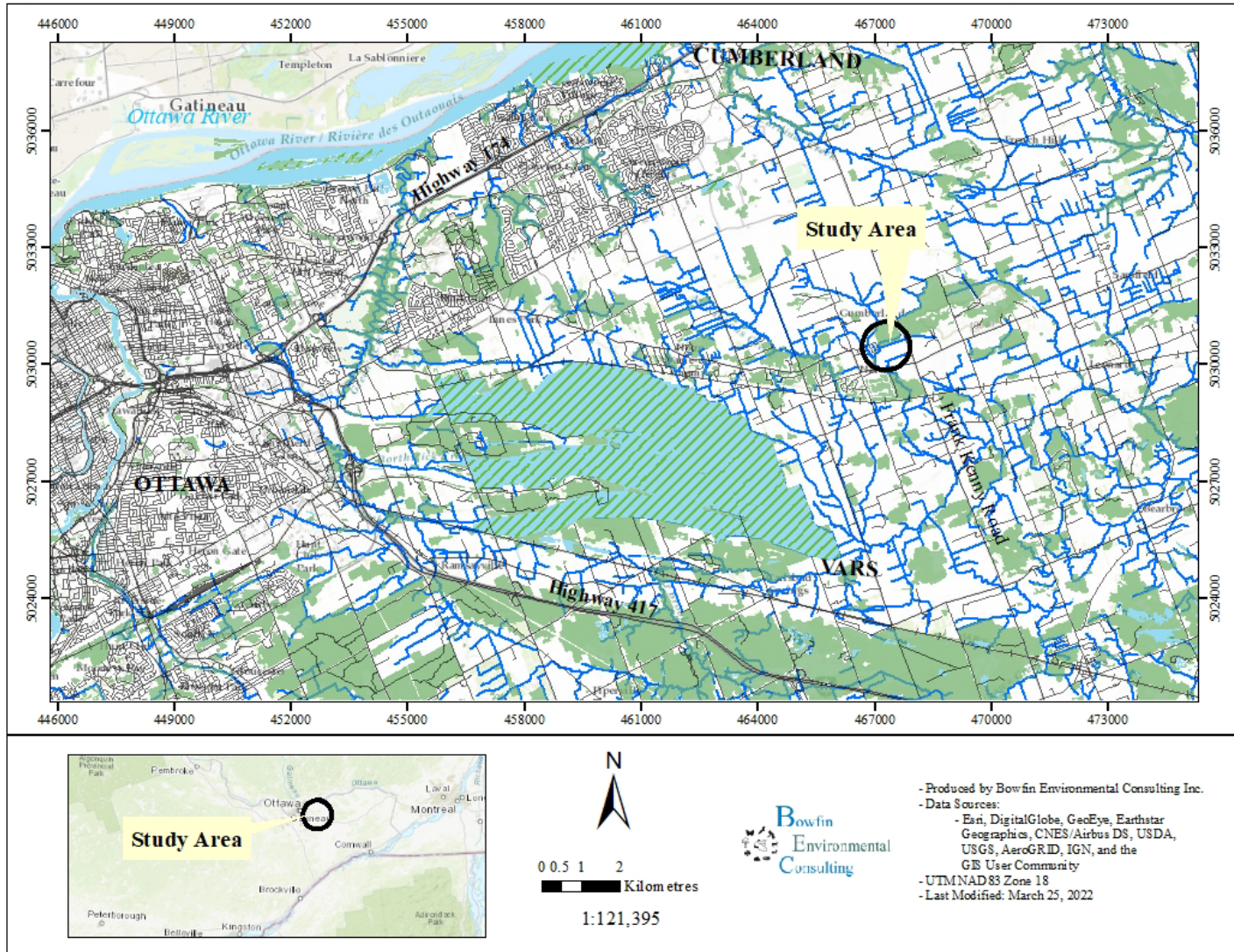
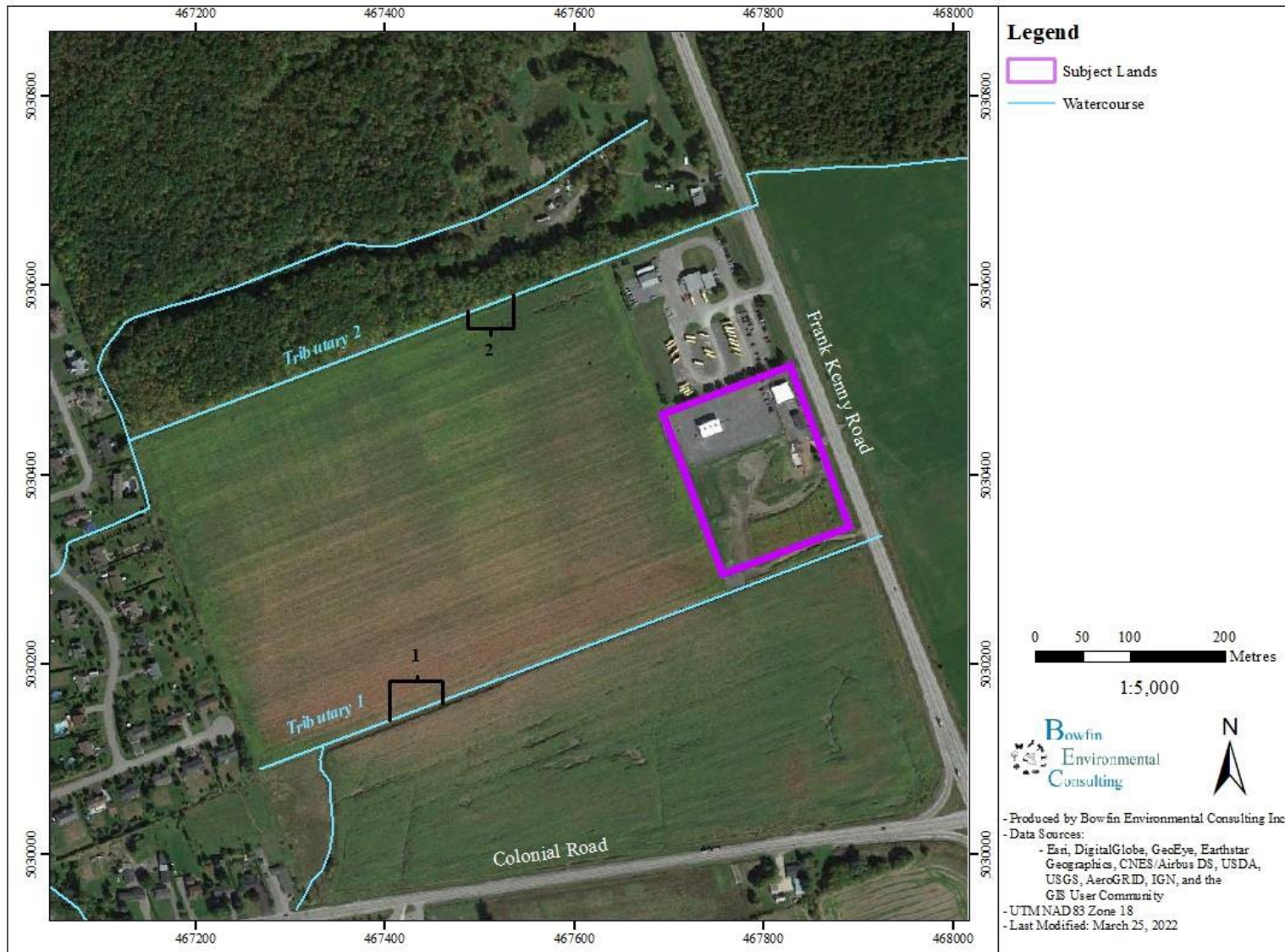


Figure 2: Study Area and 2016 Sampling Sites



2.0 METHODOLOGY

Work undertaken for the completion of this project included a background review of existing information and field investigations.

2.1 Background Review

A search through available records and available consulting reports was made to gather existing information the fish habitat and community within the project area. The following web sources were used during the background review: Natural Heritage Information Centre (NHIC), Species at Risk (limited to fish species protected under provincial or federal legislation), Land Information Ontario, DFO Nation Aquatic Species at Risk map (NASAR), the Schedules of the City of Ottawa Official Plan (OP) and available consulting reports.

2.2 Field Studies

The 2016 field visits looked at fish habitat and communities (Table 1). No field work took place in 2022 as the City and South Nation Conservation confirmed was not required based on previous findings.

Table 1: Summary of Dates, Times of Site Investigations

Date	Time (h)	Staff	Air Temperature (Min-Max) °C	Weather	Purpose
May 5, 2016	1115-1300	S. St. Pierre	16.0-18.0 (7.8-19.6)	Fresh breeze, 30 % cloud cover changing to	- Fish Sampling
		B. Pierson		30% cloud cover, gentle to moderate breeze	- Fish Habitat Assessment
August 19, 2016	1230-1245	S. St. Pierre C. Fontaine	26.0 (12.2-29.5)	Light air, clear skies	- Fish Sampling - Fish Habitat Assessment

S. St. Pierre – Shaun St. Pierre – B. Sc. Biology and Fisheries and Wildlife Technologist
 B. Pierson—Brittney Pierson—Honours BSc. Biology and Environmental Science
 C. Fontaine - Cody Fontaine - Fisheries and Wildlife Technologist

*Min-Max Temp Taken From: Environment Canada. National Climate Data and Information Archive. Ottawa International Airport. Available <http://climate.weatheroffice.gc.ca/> [October 21, 2016]

2.2.1 Fish Habitat Description

To assess the potential impacts to fish habitat, fish communities or fish species at risk (SAR) the aquatic habitats within the subject lands were assessed. The channel morphology was described using evenly spaced transects upon which data was recorded from evenly spaced observation points. The data collected included: channel width, wetted width, bankfull depth, water depth, substrate size, morphological units, and in-stream cover. Information for the habitat assessments were collected during both the May 5th and August 19th, 2016, visit for Tributary 1 (tributary for which a reduced setback is being requested) and during May 5th, 2016 for Tributary 2. The information collected on Tributary 2 served to put that of Tributary 1 into context.

2.2.2 Fish Community Sampling

Fish community sampling was performed on both tributaries during the spring visit to document the fish communities and compare the use of the available habitat by fish. The water depths ended up being too shallow to permit sampling with the backpack electrofisher as such the area was simply dip netted during the spring (May 5th, 2016). No water was present during the summer visit. The fish were identified, counted, measured (fork length or total length as appropriate for the species) and released.

3.0 RESULTS

3.1 Setting

The subject lands are in part of Lots 9 and 10 Concession 8 of the Geographic Township of Cumberland, City of Ottawa (Figure 1). The two unnamed channels are both tributaries of Bear Brook.

There is no background information available on the fish or fish habitat of these two unnamed tributaries to Bear Brook. Information was available on the nearby section of Bear Brook itself. Bear Brook is listed as a warm water system. A list of 26 common cool to warm water fish species have been recorded on Bear Brook (Table 2). This list includes sportfish (northern pike, brown bullhead, smallmouth bass, and yellow perch), panfish (rock bass and pumpkinseed) and many support fish.

The DFO National Aquatic Species at Risk Mapping (NASAR) also indicated that there are no recordings of federal endangered, threatened, or special concern in this area (Appendix A).

Table 2: Available Background Information on Fish Communities for Portion of Bear Brook Near the Site

Species Name	Scientific Name	Trophic Class	Thermal Regime	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status
Northern Pike	<i>Esox lucius</i>	piscivore	cool	S5	None	None
Central Mudminnow	<i>Umbra limi</i>	insectivore / piscivore	cool / warm	S5	None	None
Common Carp	<i>Cyprinus carpio</i>	omnivore	warm	SNA	None	None
Brassy Minnow	<i>Hybognathus hankinsoni</i>	planktivore/ detritivore	cool	S5	None	None
Common Shiner	<i>Luxilus cornutus</i>	insectivore	cool	S5	None	None
Golden Shiner	<i>Notemigonus crysoleucas</i>	omnivore	cool	S5	None	None
Blacknose Shiner	<i>Notropis heterolepis</i>	insectivore	cool / warm	S5	None	None
Rosyface Shiner	<i>Notropis rubellus</i>	insectivore	warm	S4	None	None
Spotfin Shiner	<i>Cyprinella spiloptera</i>	insectivore	warm	S4	None	None
Mimic Shiner	<i>Notropis volucellus</i>	insectivore	warm	S5	None	None
Northern Redbelly Dace	<i>Chrosomus eos</i>	invertivore/ planktivore	cool	S5	None	None
Bluntnose Minnow	<i>Pimephales notatus</i>	omnivore	warm	S5	None	None
Fathead Minnow	<i>Pimephales promelas</i>	omnivore	warm	S5	None	None
Creek Chub	<i>Semotilus atromaculatus</i>	insectivore / generalist	cool	S5	None	None
Fallfish	<i>Semotilus corporalis</i>	insectivore	cool	S4	None	None
White Sucker	<i>Catostomus commersonii</i>	insectivore / omnivore	cool	S5	None	None
Brown Bullhead	<i>Ameiurus nebulosus</i>	insectivore	warm	S5	None	None
Stonecat	<i>Noturus flavus</i>	insectivore	warm	S4	None	None
Tadpole Madtom	<i>Noturus gyrinus</i>	insectivore	warm	S4	None	None
Banded Killifish	<i>Fundulus diaphanus</i>	invertivore/ planktivore	cool	S5	None	None
Brook Stickleback	<i>Culaea inconstans</i>	insectivore	cool	S5	None	None
Trout-Perch	<i>Percopsis omiscomaycus</i>	insectivore	cold	S5	None	None
Rock Bass	<i>Ambloplites rupestris</i>	insectivore / piscivore	cool	S5	None	None
Pumpkinseed	<i>Lepomis gibbosus</i>	insectivore	warm	S5	None	None

Species Name	Scientific Name	Trophic Class	Thermal Regime	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status
Smallmouth Bass	<i>Micropterus dolomieu</i>	insectivore / piscivore	warm	S5	None	None
Yellow Perch	<i>Perca flavescens</i>	insectivore / piscivore	cool	S5	None	None
Johnny Darter	<i>Etheostoma nigrum</i>	insectivore	cool	S5	None	None
Logperch	<i>Percina caprodes</i>	insectivore	cool / warm	S5	None	None
Tessellated Darter	<i>Etheostoma olmstedi</i>	insectivore	cool	S4	None	None
Walleye	<i>Sander vitreus</i>	invertivore/carnivore	cool	S5	None	None

(Coker et al. 2001, City of Ottawa 2015, LIO, OMNR 2013, OMNR 2014, MTO 2006, MTO 2015, Page et al. 2013, Scott & Crossman 1973)

Status Updated: March 25, 2022

3.2 Aquatic Habitat and Community Results

The two channels were dug agricultural drains which flowed from west to east eventually reaching Bear Brook. The water levels were low even during the spring visit, though the watershed conditions were considered Normal (as per the SNC website). While the first visit was not until May 6, 2016, and the snowpack had melted prior to peak flows, a late winter storm in early April (last snowfall was on April 11) was followed by cold air temperatures through to mid-April. Thin layers of ice were present on slow flowing watercourses in the morning until after April 15th. As such, the spring visit was within two-weeks of the last large winter storm and water levels in the ditch can be considered to have been at the normal early spring levels.

Table 3: Summary of Rainfall from the nearest Rain Gage

Dates	Total Rainfall (mm)
April 28, 2016 – May 5, 2016	6.6 (4.6 fell on May 1)
August 12, 2016 - August 19, 2016	70.6

Total Rainfall taken from: Environment Canada. 2015. National Climate Data and Information Archive – Ottawa INTL. On-line (<http://climate.weatheroffice.gc.ca>) accessed October 13, 2016.

Table 4: Features and Sampling Parameters

Station No.	Date	Time (h)	Air Temp (°C)	Water Temp (°C)	pH	TDS (ppm)	Conductivity (µ)	Ave. Depth (cm)	Ave. Wetted Width (m)	Ave. Channel Width (m)
Spring Visit										
1	May 5, 2016	1130	16.0	n/a	n/a	n/a	n/a	5.3	1.24	1.98
2	May 5, 2016	1223	17.0	n/a	n/a	n/a	n/a	6.1	1.62	2.27
Summer Visit										
1	August 19, 2016	1230	26.0				Dry			

Tributary 1 (South Channel)

Flow from this unnamed drain eventually reaches Bear Brook (about 6.5 km downstream from the subject lands). Tributary 1 was an agriculture feature with a straight channel that flowed in an east to west direction. The Tributary along the Site's boundary was dry in the spring and summer. Surface water was not present until roughly 190 m downstream of the southwest corner of the site. This was originated from tile drains (Figure 3). No water was present anywhere during the summer visit.

Station 1

Station 1 was 55 m in length. The average channel width was 2.0 m and the average bankfull depth was 21 cm. During the spring there was a limited amount of water which provided a wetted width of 1.2 m and average water depth of 5 cm (2-14 cm). The entire tributary was dry during the summer visit. When water was present, the habitat type consisted of a glide.

The substrate consisted of fines. The in-water cover consisted of aquatic vegetation. The aquatic vegetation species included: broad-leaved cattail, reed canary grass and algae. This station had no canopy cover present. There were no signs of erosion.

The top of the banks were fully vegetated with herbaceous vegetation and the occasional woody species. The most common species were: reed canary grass, goldenrod, colt's foot, Manitoba maple, willow and red-osier dogwood. The buffer between the crops and the channel was about 3 m on both banks.

On the May 5th visit, due to shallow water, no electrofishing could be completed. Instead, a dip net was used to sample the areas containing some water. The effort was approximately 20 dips. No fish were observed or captured. On the August 19th visit, there was no water to sample.



Photo 1: Station 1 looking upstream from the downstream end (May 5, 2016)



Photo 2: Station 1 looking downstream from the upstream end (August 19, 2016)

Tributary 2

Tributary 2 was surveyed as a comparison to Tributary 1. It was assessed only during the spring visit.

This feature's habitat was similar to that of Tributary 1. It was an agricultural feature, straight and flowed in an east to west direction. Its flow eventually reached Bear Brook nearly 7.0 km downstream of the subject lands. There was water throughout the channel during the spring however it was very shallow. The surrounding lands consisted of a forest on the north side and croplands to the south. One station was established (Station 2).

Station 2

Station 2 was located on northern portion of the subject lands and was 47 m in length. The average channel width was 2.3 m and the average bankfull depth was 24 cm. During the spring there was little water. At that time the average wetted width was 1.6 m and the average water depth of 6 cm (range 3-14 cm). The spring habitat consisted of a glide.

The substrate consisted of fines. The in-water cover consisted of small woody debris and a small amount of aquatic vegetation. The aquatic vegetation species included: reed canary grass and purple loosestrife. This station had moderate canopy cover. There were no signs of erosion noted.

The top of the banks were fully vegetated with herbaceous vegetation and the occasional woody species. The most common species were: reed canary grass, goldenrod, colt's foot, red-osier dogwood, Manitoba maple, willow, trembling aspen, American elm and white cedar. There was a 2 m buffer between the cropped land and the agricultural field (cropped) to the south.

On the May 5th visit, due to shallow water, no electrofishing could be completed. Instead, a dip net was used to sample the areas containing some water. The effort was approximately 50 dips. Only one creek chub (58 mm) and one brook stickleback (55 mm) were captured. One additional brook stickleback was observed.



Photo 3: Station 2 looking downstream from the upstream end (May 5, 2016)

3.3 Fish Habitat Summary

The habitats of the two tributaries were very similar. Both consisted of agricultural features with a straight pattern. They were characteristic of agricultural drains in the area; glide over fines and heavily vegetated with emergents. Little flow was present during the spring visit and no flow was present during the summer on Tributary 1 (Tributary 2 was not assessed during the summer). While higher flows may have been present during the freshet, these levels would have been directly related to the snow melt and spring rains and ephemeral in nature. No SAR are listed as potentially occurring and none were found.

The only fish captured or observed were those on Tributary 2. These consisted of two common warm to cool water species often associated with agricultural drains and other impacted habitats (creek chub and brook stickleback). No fish were captured on Tributary 1. No barriers to fish movement were observed other than the low water levels.

Tributary 1 did not provide any direct fish habitat along the site. Any direct habitat would have been further than 190 m downstream of the southwest corner of the site and ephemeral in nature. In 2016, the portion of the feature along the site did not contribute downstream flow apart from possible snowmelt as the feature was dry. This feature provided no to indirect fish habitat within

the study area and is anticipated to provide direct fish habitat much further downstream (>190 m from the site).

Tributary 2 provides seasonal fish habitat to common forage fish. The watercress noted downstream on Tributary 2 is suggestive of groundwater upwellings.

Figure 3: Summary of Findings



4.0 FISHERIES ASSESSMENT

4.1 Fisheries Act Considerations

The initial investigations were completed while the previous version of the *Fisheries Act* was in place. That version (fully into force November 25th, 2013) was replaced with today's version on August 28, 2019. The *Fisheries Act* (FA) (August 28, 2019) prohibits:

- Death of Fish (Section 34.4 (1))
- Harmful alteration, disruption, or destruction of Fish Habitat (Section 35 (1))
- Ministerial powers to ensure the free passage of fish or the protection of fish or fish habitat with respect to existing obstructions (Section 34.3)

Under the updated FA there remain a certain type of waterbodies where DFO review is not required. While some agricultural drains may be exempt from a review, Tributary 1 is anticipated to be directly connected or to provide direct fish habitat further downstream. As such any impacts below the high-water mark would need to be reviewed. That said, based on information provided, there are no impacts below the high-water mark of the drain.

4.2 Impact Assessment Methods

The significance of the potential impacts can be measured using four different criteria:

1. Nature of Impact:
 - a. negative or positive
 - b. direct or indirect
2. Area affected may be:
 - a. local in extent signifying that the impacts will be localized within the project area
 - b. regional signifying that the impacts may extend beyond the immediate project area.
3. Duration of the impact may be rated as:
 - a. short term (construction phase, <1 year)
 - b. medium term (1-2 years)
 - c. long term (>2 years).
 - d. permanent

4. Magnitude of the impact may be:
 - a. negligible signifying that the impact is not noticeable
 - b. minor signifying that the project's impacts are perceivable and require mitigation
 - c. moderate signifying that the project's impacts are perceivable and require mitigation as well as monitoring and/or compensation
 - d. major signifying that the project's impacts would destroy the environmental component within the project area.

4.3 Evaluation of the Potential Impacts to Fish and Fish Habitat

The subject lands are already mostly developed. No works or reduced setbacks are proposed for Tributary 2 and as such this channel will not be discussed further. Tributary 1 may be utilized by fish further downstream, outside of the study area and nearer to Bear Brook. While there is no use within the study area any water quality impacts could affect fish habitat downstream. In the existing conditions, there is no canopy cover along the watercourse and the riparian habitat is limited to the first few metres from the channel after which the area is under active row cropping.

Based on the list of work activities provided, this project would not trigger DFO's review and would not cause negative impacts to fish and fish habitat. This is based on the review of the potential for both direct and indirect impacts and is discussed below.

The lack of work within the feature results in no direct impacts to the feature; no work below the high-water mark.

The work near (within 30 m) of a drain (even one that is ephemeral) could trigger indirect impacts. It is anticipated that the following activities will take place within 30 m (between 15-30 m) of the feature: clearing of vegetation, grading, construction of driveway and yard, installation of outlet for SWM facility, installation of chain link fence, backfilling and revegetating a width of 3.5 m along the property line with native grasses and shrubs. Along with the operations of the SWM facility which has an outlet that discharges onto neighbouring land. These lands include a farm access lane. Examples of potential indirect impacts include:

- erosion or introduction of sediments into the feature because of improper implementation or insufficient erosion and sediment control measures.
- grading that alters the direction of water flow and impact the amount of contributing water to the watercourse.
- SWM facility outlet across the farmer's entrance could result in erosion or turbid water entering the feature.
- SWM facility discharge could result in increased water quantity and increase the amount or duration of fish habitat.

Note that the lack of work within 15 m of the drain, on this system, eliminates the potential impacts to thermal regime.

Concerns over a potential increase of flow resulting in erosion of the banks or bed of the drain and of the conveyance of water over the farmer's access road which could create erosion or turbid water have been addressed. Information provided by J.L. Richards indicates the following:

- Designing the new pond to manage runoff from both Phases 1 and 2 of the site and controlling offsite flow to prevent discharge from causing any erosion to the terrain in or outside of the property line.
- Maintaining the same water contribution to the feature (same pre- to post- water quantity).
- The proposal will not alter the existing farmer's access. The size of the existing culvert has been considered and all development runoff waters will be controlled. Erosion control measures have been designed for the SWM facility's outlet pipe.
- Providing Enhanced Level of treatment (80% TSS) for the Stormwater Management Facility (SWF) to ensure the same or better water quality (currently at 70% TSS).
- The amount of water would be the same as existing conditions resulting in no change to the existing agricultural drain's amount or duration of water (in 2016 it was found to be dry or ephemeral).
- Addition of a 3.5 m landscaped buffer along property line consisting of native grasses and shrubs.

Based on the characteristics of the watercourse at this site any works between the 15 m and 30 m could result in negative indirect impacts to a local area and would consist of short term (during construction) to permanent (reduced setback). Prior to mitigation these indirect impacts would be minor unless a major accident (i.e., accidental spill) in which case the magnitude could be moderate. The potential indirect impacts can be eliminated through avoidance and mitigation measures. These are listed below.

Planning

- No work will occur within the normal high-water mark.
- No new development within 15 m of the top of bank.
- Minimize clearing of vegetation within 30 m from the normal high-water mark. Unless required avoid stripping lands and simply drive over vegetation during construction.
- Site instruction will be provided to contractor to highlight that the channel provides indirect fish habitat.
- Suspend activities that cause muddy environments, within 30 m of the drain, during periods of heavy rains. No turbid runoff is permitted to leave the site.a

Erosion and Sediment Control

- Erosion and sediment control measures will be installed prior to the clearing of vegetation within 30 m of a watercourse.
- An erosion and sediment control plan will be developed by the contractor and implemented prior to any work within 30 m of the watercourse.
 - Provide regular maintenance to the erosion and sediment control measures during construction. Contractor shall be responsible for ensuring that the erosion and sediment control measures are maintained and will monitor the water clarity downstream of the work site throughout the day and during rain events. Water quality is to meet the *Canadian Water Quality Guidelines for the Protection of Aquatic Life*. Monitoring for visible plumes outside of the work area is to be undertaken.
 - At a minimum, the erosion and sediment control plan will include the installation of sediment fencing along the property line where vegetation clearing and/or soil disturbance will occur within 30 m of any channel prior to the removal of vegetation.
 - Additional materials (*i.e.*, rip rap, filter cloth and silt fencing) will be readily available in case they are needed promptly for erosion and/or sediment control.
- Any stockpiles of soil or fill material will be stored as far as possible from the channel and protected by silt fencing (minimum 30 m).
- The sediment fencing will not be removed until the 30 m from the high-water mark is stabilized (<20% bare soil).
- Where banks/riparian area (area within 30 m of channel) have been stabilized by seeding and/or planting, monitor the revegetation to ensure that the vegetation becomes fully established.
- Any riprap (*i.e.*, erosion control measures at the end of the outlet pipe) will consist of clean rock free of fines.

Contaminant and Spill Management

- All equipment working in or near the water should be well maintained, clean and free of leaks. Maintenance on construction equipment such as refueling, oil changes or lubrication would only be permitted in designated area located at a minimum of 30 m from the shoreline in an area where sediment erosion control measures and all precautions have been made to prevent oil, grease, antifreeze, or other materials from inadvertently entering the ground or the surface water flow.
- Emergency spill kits will be located on site. The crew will be fully trained on the use of clean-up materials to minimize impacts of any accidental spills. The area would be monitored for leakage and in the unlikely event of a minor spillage the project manager would halt the activity and corrective measures would be implemented.

- If a spill occurs:
 - Stop all work
 - Spills are to be immediately reported to the MECP Spills Action Centre (1800 268-6060). Note that under the *Fisheries Act* deleterious substance includes sediments.
 - Clean-up measures are to be appropriate and are not to result in further harm to fish/fish habitat.
 - Sediment-laden water will be removed and disposed of appropriately.
- No construction debris will be allowed to enter the watercourse.
- Following the completion of construction, all construction materials will be removed from site.

Operation

- Ensure that storm water management is installed and maintained to meet with the Ministry of Environment, Conservation and Parks (MECP) approval.

Net Impact

Provided that the other mitigation measures listed above are followed, then it is anticipated that any indirect impacts will be reduced to negligible to none.

5.0 CONCLUSIONS AND RECOMMENDATION

Two unnamed channels were investigated. These were labelled tributaries 1 and 2. Tributary 1 was found to the south of the subject lands, and it consisted of a dug straight drain. Tile drain outlets were found downstream of the subject lands and this area contained some water during the spring, but all was dry come summer. The water depths were too shallow in the spring to allow for backpack electrofishing but here the dip netting did not find any fish. Since the channel was not explored further downstream, nearer to Bear Brook, it could not be ruled out as direct fish habitat. However, the section running alongside of the subject lands did not provide direct fish habitat. There is no work proposed within this channel or within 15 m of this watercourse but there will be a reduction in the 30 m setback from the normal high water mark.

Reduced setbacks can affect the in-water habitat both structurally and thermally and improper erosion and sediment control measures during construction and afterwards can result in reduced water qualities. Given that this tributary is a warm-water channel that did not provide direct fish habitat within the area of impact and no SAR have been documented on this channel or Bear Brook (6.5 km downstream), there is little concern with changes to the channel or thermal regime. Further, that there was no canopy cover and there is no work planned within 15 m of the channel. The remaining potential impacts would be the result of improper sediment and erosion

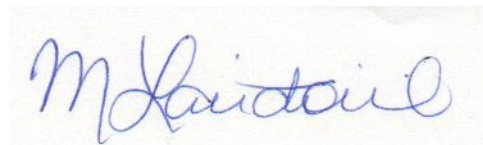
control measures during construction or operations. The water flows and quality will remain the same pre- and post- construction and an MECP SWM pond will be built using an existing outlet to Tributary 1 (that already has rip rap for erosion control). It is understood that the SWF has been designed to be a dry pond to meet enhanced water quality measures (80% TSS), which is an improvement to the current system which offers 70% TSS, and that the discharge is to be controlled. By controlling the discharge water, the erosion and sediment concerns will have been minimized or eliminated. The potential impacts can be addressed by common best management and mitigation measures and provided that they are properly implemented, maintained, and monitored, no impacts area anticipated. In addition, a 3.5 m landscaped buffer consisting of native grasses and shrubs is proposed along the easterly lot line (closest to the drain).

Provided that the mitigation measures listed herein are followed then no impacts are anticipated to downstream fish or to the fish habitat because of the reduction in setback to ± 19 m.

I trust that this report will meet your requirements. Should you have any questions or comments, please contact the undersigned.

Sincerely,

Bowfin Environmental Consulting Inc.



Michelle Lavictoire, Biologist/Principal

6.0 REFERENCES

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Appendix A: Background Information

