



**PARAGRAPH 35(2)(b) FISHERIES ACT AUTHORIZATION (A DEEMED
PARAGRAPH 34.4(2)(B) AND 35(2)(B) FISHERIES ACT
AUTHORIZATION ISSUED UNDER THE AMENDED FISHERIES ACT)**

Authorization issued to

Ontario Ministry of Transportation (*hereafter referred to as the "Proponent"*)

Attention to: Valerie Nantais
Exeter Road Complex, 3rd Floor
659 Exeter Road
London, ON
N6E 1L3

Location of Proposed Project

Nearest community (city, town, village): Kitchener
Municipality, district, township, county: Regional Municipality of Waterloo
Province: Ontario
Name of watercourse, waterbody: Grand River
Longitude and latitude, UTM Coordinates: 43.397984, - 80.386060

Description of Proposed Project

The proposed project of which the work, undertaking or activity authorized is a part involves:

The removal of two existing Highway 401 bridge structures crossing the Grand River near Kitchener, ON and their replacement with two, 225 m long, four span bridge structures with a 40-55-75-55 m span configuration. Additionally, the extension of two corrugated steel pipe culverts located on an unnamed tributary to Blair Creek and an unnamed tributary to the Grand River.

Description of Authorized work(s), undertaking(s) or activity(ies) likely to result in serious harm to fish

The work(s), undertaking(s), or activity(ies) associated with the proposed project described above, that are likely to result in serious harm to fish, are:

- The installation of two (east and west bank) temporary rock causeways with a combined footprint of 779 m² below the high water mark of the Grand River for a duration of approximately 6 months during year one of construction.
- The installation of two (east and west bank) temporary rock causeways with a combined footprint of 1057 m² below the high water mark of the Grand River for a duration of approximately 6 months during year two of construction.
- The installation of two (east bank and west bank) temporary rock causeways with a combined footprint of 227 m² below the high water mark of the Grand River for a duration of approximately 6 months during year three of construction.
- The installation of two new bridge piers with a combined footprint of 677 m² below the high water mark of the Grand River.

- A 32.5 m² extension of an existing culvert on an unnamed tributary of the Grand River.
- A 10.8 m² extension of an existing culvert on an unnamed tributary of Blair Creek.

The serious harm to fish likely to result from the proposed work(s), undertaking(s), or activity(ies), and covered by this authorization are

- Permanent alteration of a total of 2,363 m² of fish habitat due to the installation of temporary rock causeways for a duration of 6 months per construction year (Year 1: 779 m², Year 2: 1057 m², Year 3: 227 m²) in the Grand River.
- Permanent alteration of approximately 32.5 m² of fish habitat due to corrugated steel pipe culvert extension on an unnamed tributary of the Grand River.
- Permanent alteration of approximately 10.8 m² of fish habitat due to corrugated steel pipe culvert extension on an unnamed tributary of Blair Creek.
- Destruction of 677 m² of fish habitat due to new bridge pier installation in the Grand River.
- Death of fish of an incidental nature during the rescue and relocation of fish within isolated areas.

Conditions of Authorization

The above described work, undertaking or activity that is likely to result in serious harm to fish must be carried on in accordance with the following conditions.

1. Conditions that relate to the period during which the work, undertaking or activity that will result in serious harm to fish can be carried on

- 1.1 The work, undertaking or activity that results in serious harm to fish is authorized to be carried on during the following period:

From: Date of Issuance

To: **December 31, 2024**

If the Proponent cannot complete the work, undertaking or activity during this period, Fisheries and Oceans Canada (DFO) must be notified in advance of the expiration of the above time period. DFO may, where appropriate, provide written notice that the period to carry on the work, undertaking or activity has been extended.

The periods during which other conditions of this authorization must be complied with are provided in their respective sections below. DFO may, where appropriate, provide written notice that these periods have been extended, in order to correspond to the extension of the period to carry on a work, undertaking, or activity.

2. Conditions that relate to measures and standards to avoid and mitigate serious harm to fish

- 2.1. Sediment and erosion control: Sediment and erosion control measures must be in place and shall be upgraded and maintained, such that release of sediment is avoided at the location of the authorized work, undertaking, or activity.
- 2.2. List of measures and standards to avoid and mitigate serious harm to fish:
- 2.2.1. A qualified environmental professional shall be on-site to monitor all instream and shoreline activities.
- 2.2.2. The project shall be designed and constructed in a manner that shall not result in impacts to fish passage or migration.

- 2.2.3. Whenever feasible, the work area shall be isolated to prevent deleterious substances from migrating out of the isolated area and equipment shall operate from outside the wetted width or from within the isolated area and shall contain fluids that are non-toxic to aquatic life.
- 2.2.4. Should the need for dewatering arise, water shall be released into a well-vegetated area or settling basin and not directly into fish-frequented waters. Water returning to fish-frequented waters shall be of equal or better quality than the water in the fish-frequented waters.
- 2.2.5. Where water is pumped from fish-frequented waters for any purpose, pump intakes shall be screened in accordance with DFO's "Freshwater Intake End-of-Pipe Fish Screen Guideline" (1995, <http://www.dfo-mpo.gc.ca/Library/223669.pdf>). The outlet shall have a diffuser or be placed in a location that is not subject to erosion from the outflow.
- 2.2.6. Any water drainage systems shall be constructed in a way as to prevent erosion and release of sediment or sediment laden water into any fish bearing waterbodies and watercourses.
- 2.2.7. Water released to the environment shall meet the Council of Ministers of the Environment (CCME) "Canadian Water Quality Guidelines for the Protection of Aquatic Life".
- 2.2.8. Riprap shall:
 - 2.2.8.1. Be free of contaminants and artificial debris prior to placement and, if applicable, be of sufficient size to resist displacement during design flood events
 - 2.2.8.2. Not be obtained from areas below the ordinary high water mark of any fish-frequented waters
- 2.2.9. Fish and mussels in isolated areas shall be rescued and relocated to an area within the same watercourse containing suitable habitat prior to any works commencing within the isolated area. Fish rescues shall include effective capture and handling procedures designed to minimize mortality (e.g. electrofishing, seine netting, minnow trapping). Mussel relocations shall be in accordance with DFO's "Protocol for the detection and relocation of freshwater mussel species at risk in Ontario Great Lakes area (OGLA)" (Mackie, Morris, Ming, 2008).
- 2.2.10. All spoil materials and debris from the project area shall be removed from the site and properly disposed of above the high water mark such that it does not enter any fish-frequented waters.
- 2.2.11. Equipment operating in or near fish-frequented waters shall be operated, refuelled and serviced in a manner that prevents spills, leaks or wash water from entering fish-frequented waters.
- 2.2.12. Temporary rock causeways shall be installed no sooner than July 1st and shall remain in-water for no longer than 6 months during any given construction year.
- 2.2.13. Short term rock causeways shall be installed no sooner than July 1st and shall remain in-water for no longer than 3 months during any given construction year.
- 2.2.14. No less than 15 large boulders shall be evenly dispersed around the wetted perimeter of any installed rock causeway to provide velocity refuge to passing fish.
- 2.2.15. Disturbed areas associated with the construction site shall be revegetated as soon as possible with plant species native to the area.
- 2.3. Contingency measures: Works shall be halted if monitoring required in condition 3 below indicates that the measures and standards to avoid and mitigate serious harm to fish are not successful. Additional measures to avoid and mitigate serious harm shall be developed and submitted to Fisheries and Oceans Canada for approval prior to works recommencing.
- 2.4. Dates by which these measures and standards shall be implemented: Measures and standards to avoid and mitigate serious harm to fish shall be implemented at the start of the project and maintained throughout the duration of the project.
3. **Conditions that relate to monitoring and reporting of measures and standards to avoid and mitigate serious harm to fish**
 - 3.1 Monitoring of avoidance and mitigation measures: The Proponent shall monitor the implementation of avoidance and mitigation measures referred to in condition 2 of this authorization and report to

DFO after the completion of the construction works with the potential to cause serious harm to fish, by no later than **December 31, 2025**, indicating whether the measures and standards to avoid and mitigate serious harm to fish were conducted according to the conditions of this authorization. This shall be done by:

- 3.1.1 Demonstration of effective implementation and functioning: Inspection reports with dated and annotated photographs taken of the pre-construction, during construction and post construction periods, showing works completed according to the approved plan and conditions of this Authorization shall be submitted to DFO. Photographs for each period shall be taken from the same vantage point(s), direction and angle of view for comparison. These photos must demonstrate effective implementation and functioning of mitigation measures and standards described above to limit the serious harm to fish to what is covered by this authorization.
- 3.1.2 Contingency measures: Providing details of any contingency measures that were followed to prevent impacts greater than those covered by this authorization in the event that mitigation measures did not function as described.
- 3.2 Other monitoring and reporting conditions:
 - 3.2.1 The Authorization Holder shall conduct monitoring as per the proposed plan: "Ministry of Transportation – West Region, Highway 401 Grand River Bridge Replacements, Fisheries Act Authorization Permit Application Package – DFO File #18-HCAA-00145" prepared by WSP on behalf of the Ontario Ministry of Transportation, submitted August 27, 2019, including continual monitoring throughout the fish and mussel relocation operations, and daily monitoring for risk of erosion and sedimentation downstream.

4 Conditions that relate to the offsetting of the serious harm to fish likely to result from the authorized work, undertaking or activity

- 4.1 Scale and description of offsetting measures: The offsetting measures shall be carried out in accordance with the measures set out in the Proponent's offsetting plan: "Ministry of Transportation – West Region, Highway 401 Grand River Bridge Replacements, Fisheries Act Authorization Permit Application Package – DFO File #18-HCAA-00145" prepared by WSP on behalf of the Ontario Ministry of Transportation, submitted August 27, 2019, approved by DFO and summarized as follows:
 - 4.1.1 Creation of overwintering pool habitat: The construction of stable deep pools that will retain an open-water portion throughout the winter months, allowing fish occupation year-round. The overwintering pool habitat shall:
 - 4.1.1.1 Consist of two large, elongated pools (approximately 294 m² each) created below the new bridge, adjacent to the new piers, and two smaller pools (approximately 179 m² each) created upstream and downstream of the new bridge;
 - 4.1.1.2 Be of a depth of no less than 1.7 m;
 - 4.1.1.3 Contain substrates designed to encourage the continual scouring of the pool; and
 - 4.1.1.4 Be stabilized through the use of keystones at the upstream ends of the pools which will direct flows to continually scour out the base.
 - 4.1.2 Bank remediation and rehabilitation: The restoration of approximately 1,113 m² of an unstable and eroding bank section located immediately downstream of the bridge structure on the east river bank. The bank remediation and rehabilitation shall include:
 - 4.1.2.1 The replacement of two corrugated steel pipe (CSP) drainage outlets with a 1 m bottom ditch lined with rip-rap;
 - 4.1.2.2 The modification of a third CSP drainage outlet to outlet into a controlled pool with a rock pad;
 - 4.1.2.3 The re-grading of the bank section to accommodate the new drainage outlets and reduce erosion: and

- 4.1.2.4 Planting of the bank section with native species to further stabilize the slope and prevent erosion and sediment release into the river.
- 4.1.3 Habitat diversification and enhancement features: The installation of a series of large boulder clusters in the areas previously occupied by the rock causeways, covering approximately 50 m² and the installation of anchored sweeper trees along the east shoreline at the location of the bank remediation and rehabilitation activities, covering approximately 100 m².
- 4.2 Offsetting criteria to assess the implementation and effectiveness of the offsetting measures: All fish habitat offsetting measures shall be completed and functioning according to the criteria below and as described in the Proponent's offsetting plan referred to in condition 4.1:
 - 4.2.1 All offsetting works shall be completed and functioning by **December 31, 2024**.
 - 4.2.2 Photographic Documentation: A digital photographic record of pre-construction, during construction and post-construction conditions shall be compiled using the same vantage points and direction to verify that each individual offsetting component has been constructed in accordance with the offsetting plan.
 - 4.2.3 As built drawings: An as-built survey shall verify that each individual offsetting component has been constructed in accordance with the requirements of the offsetting plan.
 - 4.2.4 Overwintering pool habitat: All created pool habitat shall retain depths of no less than 1.7 m, shall maintain typical pool substrate, shall not significantly disrupt other morphological features of the river, shall maintain temperatures suitable for fish survival over the winter months and shall be actively utilized by fish.
 - 4.2.5 Vegetation: Vegetation cover and plantings shall achieve 80% coverage of area and survival of planted stock.
 - 4.2.6 Bank remediation and rehabilitation: The restored bank section and drainage outlets shall be stable and show no signs of excessive erosion beyond the natural range.
 - 4.2.7 Habitat diversification and enhancement features: Boulder clusters shall remain stable and demonstrate use by fish as velocity refuge habitat and in-stream cover. Sweeper trees shall be stable and demonstrate active use by fish for refuge, in-stream cover and nursery habitat.
- 4.3 Contingency measures: If the results of monitoring as required in condition 5 indicate that the offsetting measures are not completed by the date specified and/or are not functioning according to the above criteria in 4.2, the Proponent shall give written notice to DFO and shall implement the contingency measures and associated monitoring measures, as contained within the approved offsetting plan, in consultation with DFO, to ensure the implementation of the offsetting measures is completed and/or functioning as required by this authorization.
 - 4.3.1 Scale and description of contingency measures: The Proponent shall conduct necessary works, undertakings or activities to ensure the structural stability and ongoing functionality of any contingency offsetting habitat in consultation with and to the satisfaction of DFO, should the offsetting plan not meet the requirements for offsetting associated with this Authorization.
 - 4.3.2 Monitoring measures to ensure offsetting contingency is completed and/or functioning as required: The Proponent shall conduct monitoring to document the success of any contingency offsetting habitat to the satisfaction of DFO, to ensure the offsetting measures are completed and/or functioning as required by this authorization
- 4.4 The Proponent shall not carry on any work, undertaking or activity that will adversely disturb or impact the offsetting measures.

5 **Conditions that relate to monitoring and reporting of implementation of offsetting measures (described above in section 4):**

- 5.1 Schedule(s) and criteria: The Proponent shall conduct monitoring of the implementation of offsetting measures according to the approved offsetting plan, as summarized in the timeline and

criteria below. Monitoring shall occur in years 2, 4 and 5 (2026, 2028 and 2029), unless otherwise noted.

- 5.1.1 Photographic Documentation: A digital photographic record of pre-construction, during construction and post-construction conditions shall be compiled using the same vantage points and direction.
- 5.1.2 As-built drawings: An as-built survey shall be conducted within 6 months of completion of the offsetting construction, and reported on once post-construction.
- 5.1.3 Overwintering pool habitat: The dimensions, depth and substrate composition of the overwintering pool habitat shall be assessed to verify the pools are retaining their designed form. Fish sampling shall be conducted within each overwintering pool to confirm utilization and species composition. Temperatures shall be recorded throughout the winter months to verify that the habitat is suitable for fish survival.
- 5.1.4 Vegetation assessment: Percent cover of herbaceous ground cover and percent survival of planted stock shall be assessed.
- 5.1.5 Bank remediation and rehabilitation: Restored bank section shall be visually assessed to ensure the drainage outlet features are functioning as designed and that excessive erosion beyond the natural range is not occurring.
- 5.1.6 Habitat diversification and enhancement features: Boulder clusters and sweeper trees shall be visually inspected to verify they are stable and functioning as intended. Fish sampling shall be conducted around each habitat enhancement feature to assess fish utilization and species composition.
- 5.2 List of reports to be provided to DFO: The Proponent shall report to DFO on whether the offsetting measures were conducted according to the conditions of this authorization by providing the following:
 - 5.2.1 A post-construction monitoring report shall be submitted to DFO on or before **December 31, 2025**.
 - 5.2.2 Monitoring reports, as per condition 5.1, shall be submitted to DFO prior to the end of each monitoring year, on or before **December 31, 2026** (year 2), **December 31, 2028** (year 4) and **December 31, 2029** (year 5).

Authorization Limitations and Application Conditions

The Proponent is solely responsible for plans and specifications relating to this authorization and for all design, safety and workmanship aspects of all the works associated with this authorization.

The holder of this authorization is hereby authorized under the authority of Paragraph 35(2)(b) of the *Fisheries Act*. R.S.C., 1985, c.F-14, to carry on the work(s), undertaking(s) and/or activity(ies) that are likely to result in serious harm to fish as described herein.

This authorization does not purport to release the applicant from any obligation to obtain permission from or to comply with the requirements of any other regulatory agencies.

This authorization does not permit the deposit of a deleterious substance in water frequented by fish. Subsection 36(3) of the *Fisheries Act* prohibits the deposit of any deleterious substances into waters frequented by fish unless authorized by regulations made by Governor in Council.


In accordance with *An Act to amend the Fisheries Act and other Acts in consequence*, this authorization is deemed to have been issued under the authority of paragraphs 34.4(2)(b) and 35(2)(b) of the *Fisheries Act* as those paragraphs read after the day on which section 22 of *An Act to amend the Fisheries Act and other Acts in consequence* came into force, on August 28, 2019. This authorization also acts as a permit under the *Species at Risk Act*, as per section 74 of that Act.

The failure to comply with any condition of this authorization constitutes an offence under Paragraphs 40(3)(a) of the *Fisheries Act* and may result in charges being laid under said Act.

This authorization must be held on site and work crews must be made familiar with the conditions attached.

This authorization cannot be transferred or assigned to another party. If the work(s), undertaking(s) or activity(ies) authorized to be conducted pursuant to this authorization are expected to be sold or transferred, or other circumstances arise that are expected to result in a new Proponent taking over the work(s), undertaking(s) or activity(ies), the Proponent named in this authorization shall advise DFO in advance.

Date of Issuance: JAN 10 2020

Approved by: 
David Nanang
Regional Director General
Central and Arctic Region
Fisheries and Oceans Canada