



**BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT**

**2024 TOTE ROAD FISH HABITAT MONITORING
ANNUAL REPORT**

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ACKNOWLEDGEMENTS

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SECTION 1.0 - INTRODUCTION

1.1 MARY RIVER PROJECT

The Mary River Project (the Project) is an iron ore mining project operated by Baffinland Iron Mines Corporation (Baffinland) located in the North Baffin region of Baffin Island, Nunavut. Commercial open pit mining, including pit bench development, ore haulage, and ore stockpiling, as well as the crushing and screening of high-grade iron ore, commenced at the Project Mine Site in September 2014. Ore from the Project Mine Site is transported along the Tote Road to Milne Port, located approximately 100 kilometres (km) north of the Mine Site, where it is stockpiled. At Milne Port, the ore is loaded onto bulk carrier ships for transport to international markets during the shipping season. Detailed descriptions of the Project and annual activities can be found in reports from Knight Piésold (2007b, 2008) and Baffinland (2009 to 2023, incl.).

The Tote Road was first established in the 1960s and extends approximately 100 kilometres between the Mary River Mine Site (Mine Site) and Milne Port. Currently, the Tote Road is used as a means of transport of iron ore, personnel, equipment, and supplies between the Mine Site and Milne Port. Since 2013, there have been ongoing upgrades to sections of the Tote Road as part of the construction and operation of the Early Revenue Phase (ERP) for the Project, to mitigate sedimentation and erosion concerns, and to safely and efficiently transport iron ore from the Mine Site to Milne Port. Tote Road upgrades and improvements have included the following activities:

- Several clear span bridges were constructed in 2014 replacing sea container crossings;
- Widening, straightening and realignment of sections of the Tote Road at strategic locations;
- Addition of protective armouring on several road embankments and erosion mitigation measures; and
- Continued installation, movement and/or extension of culverts at identified stream crossings to maintain and restore fish passage, improve transportation safety and minimize erosion/sedimentation.

Baffinland continues to work with the QIA and DFO to address outstanding issues and implement remedial works and upgrades at 20 priority culvert crossings along the Tote Road. Baffinland retained external engineering support to design permanent replacements for the 20 high priority water crossings. In late February 2024, DFO indicated to the Nunavut Water Board (NWB) that their concerns with an earlier version of the previous Permanent Crossing Plan had been

addressed. Baffinland performed a culvert remediation program from February to May 2024 which included the construction of 7 of the 10 round CSP culverts before the start of freshet. The construction experienced several challenges with implementing designs and permafrost and ice lens complications at select crossings.

Following construction significant settlement of select culvert crossings was observed along the culvert crossing alignments as result of suspected permafrost thaw. The discovery of these design challenges has warranted additional engineering work and collaboration with DFO, in order to ensure the unique North Baffin Island environment is well understood based on lessons learned in the field, and to ensure future functionality of culvert crossings. Further engineering work is currently being conducted and an updated schedule that will incorporate lessons learned from historical failure modes is being developed with external advice.

1.2 AUTHORIZATION FOR WORKS

Fisheries and Oceans Canada (DFO) (1998) defined Harmful Alteration, Disruption or Destruction (HADD) as: “any meaningful change in one or more habitat components that can reasonably be expected to cause a real reduction in the capacity of the habitat to support the life requisites of fish”. A HADD occurs when the physical, chemical, or biological features of a water body are sufficiently altered, such that habitat becomes less suitable for one or more life history processes of fish. Detailed descriptions of the 2007 HADD authorization and any related amendments and Letters of Advice can be found in previous annual reports (Knight Piésold 2007b, 2008; Baffinland 2009 to 2023, incl.) and the Fish Habitat No Net Loss and Monitoring Plan as described by Knight Piésold (2007a). Habitat compensation is defined by DFO (1998) as “the replacement of natural habitat, increase in the productivity of existing habitat, or maintenance of fish production by artificial means in circumstances dictated by social and economic conditions, where mitigation techniques and other measures are not adequate to maintain habitats for Canada’s fisheries resources”.

A total of thirty-seven (37) fish-bearing crossings were originally identified as potential HADD locations (August 2007 *Fisheries Act* Authorization), those that require potential compensation, and those sites identified in the Letter of Advice (LOA) in the August 2007 No Net Loss and Monitoring Plan and/or subsequent amendments that have been monitored annually since 2008/2009 and were re-surveyed in spring 2023 (Figure 1). Twelve crossings previously determined to be non-fish bearing have been re-categorized as known or potential fish habitat following the completion of additional baseline surveys to support permitting for proposed expansion plans. Twenty-one (21) fishless crossings that were originally identified in the August 2007 No Net Loss and Monitoring Plan, and/or subsequent amendments that are periodically surveyed to confirm continued lack of fish use, were not visited in 2024. Two consecutive years

(2019-2020) of surveys confirmed the original determinations of non-fish bearing status for these 21 fishless crossings.

In addition to monitoring of fish passage at stream crossings, crossings were surveyed for potential issues with erosional and sedimentation condition and/or performance. Crossings requiring remediation for potential fish passage issues (e.g., perched culverts) were identified, and remediation plans for the priority 20 crossings from DFO are being evaluated with further engineering from lessons learned.

Tote Road culvert upgrades for the 20 priority crossings associated with the February 5 2024 Corrective Measures Order (CMO) is ongoing. Baffinland performed a culvert remediation program from February to May 2024 which included the construction of 7 of the 10 round CSP culverts before the start of freshet associated with CMO. Further engineering incorporating lessons learned from the first 7 crossings is ongoing and updates will be provided in subsequent annual reports.

1.3 REPORTING

Annual reports have previously been submitted for the years 2007 to 2023 (Knight Piésold 2007b, 2008 and Baffinland 2009 to 2023, incl.).

This 2024 Annual Report, herein, covers the period of activity up to and including December 31, 2024. It summarizes the fish habitat monitoring results and provides a record for additional works or undertakings completed in accordance with the approved No Net Loss and Monitoring Plan (Knight Piésold 2007a) and conditions of the authorization, subsequent amendments, and Letters of Advice.

SECTION 2.0 - PROJECT DESCRIPTION

2.1 CONSTRUCTION WORK

Design summaries and descriptions of work along the Tote Road completed up to the end of 2009 are presented, in detail, in Knight Piésold (2007c) and Baffinland (2009). Road construction activities and installation of fish access improvement structures and erosion mitigation measures at select crossings are described in Baffinland's annual reports to DFO (2010 to 2023, incl.).

In order to safely and efficiently transport iron ore from the Mine Site to Milne Port during the early operational period of the mine, the existing Tote Road has been further upgraded (sections were straightened, widened and/or moved) to accommodate B-Train trucks and in addition to mitigate sedimentation and erosion. The first phase of the upgrades involved replacement of sea container crossings with bridges. Bridge installation was completed during the winter of 2013/14 and seacan container crossings were removed at all locations by early 2017. Modifications to accommodate upgrades to the Tote Road and specific water crossings to support the ERP of the Project commenced in 2013 and remain ongoing. Baffinland has received approvals from DFO and the NWB in the form of LOAs (Appendix A) and email correspondence to proceed with these changes.

Seven fish bearing crossings were remediated from February to May 2024 as per the Engineering designs and Issued for Construction Drawings (IFC) submitted within the Permanent Crossing Plan - Round CSP Culverts (KP, 2024a). There was no construction work at fish-bearing stream crossings along the Tote Road during the open water period in 2024 with the exception of at CV-049. An unprecedented rainfall event experienced on September 20, resulted in the washout of the crossing. The washout at Km 63.5 removed existing culverts and required an emergency remediation plan to be developed with two objectives: 1) to re-establish connectivity between the Mine and Port, and 2) to re-establish fish passage through the repaired roadway. Through standard design practices, environmental monitoring oversight and skilled operator implementation, the washout at km 63.5 was replaced in late September with no impacts to downstream water quality during in-stream work. DFO was kept apprised of the emergency culvert crossing repair work and a CSR was submitted in early February. Table 1 summarizes the locations and activities where culvert maintenance was conducted in 2024 while Appendix C provides a photographic record of the activities completed.

Future Tote Road improvements/realignments required in support of on-going operations and future expansion projects will utilise guidance received from DFO to inform on development of permanent crossing remedial plans. Baffinland will work with the DFO as necessary to ensure planned modifications to fish bearing crossings are in compliance of the *Fisheries Act* and the

interim codes of practice for culvert maintenance and temporary cofferdams and diversion channels (as published).

2.2 FISH HABITAT ASSESSMENT

Watercourses initially identified as HADD (n = 25), compensation (n = 12), and LOA (n = 23) sites (Knight Piésold 2007a) were assessed for quality of available fish habitat at least once between 2006 and 2009 (Baffinland 2009). Three sites (CV-183, CV-181, and BG-16) originally identified as potential compensation sites at the onset of the program were not revisited in recent surveys because:

- Sites CV-183 and CV-181 no longer exist (these crossings were removed during initial construction upgrades in the winter of 2008/2009).
- Site BG-16 was originally identified as a compensation site during the 2007 habitat assessment based on a desktop assessment rather than a field assessment. After a field habitat assessment conducted at the crossing in 2009 confirmed that BG-16 was not a fish bearing crossing, it was removed from the compensation site classification (Baffinland 2009).

In 2020, two additional fishless sites (CV-176 and CV-167) were removed from the compensation site list and LOA classifications, respectively. The stream crossing at CV-176 was significantly altered during the installation of authorized infrastructure that included diversions and infills of stream reaches, where laydowns were constructed at the Port Site, and consequently the crossing no longer exists in its natural state. Site CV-167 was incorrectly identified as fish habitat.

Sites confirmed as fish habitat were monitored annually from 2010-2024 while fishless sites have been monitored periodically, including in 2019 and 2020, to confirm the continued presence of natural barriers to fish passage preventing access to the crossing area (Knight Piésold 2007b, 2008, Baffinland 2009 to 2023, incl.).

The primary objectives of the 2024 monitoring program were to assess the presence of fish, habitat quality, and upstream accessibility through installed culverts at fish-bearing sites and assess the results of remediation works completed at seven crossings during the winter of 2024. Remediation sites were assessed for improvements to fish habitat at the crossing, reduction of erosion and fish passage success.

Habitat and fish surveys at all non-remediated sites were conducted along 50 m reaches upstream and downstream of each applicable crossing. Water temperature and general habitat conditions were recorded upstream and downstream of these crossings. Fish presence was determined through visual surveys and the use of a backpack electrofisher. In previous years, both methods

have proven to be highly reliable techniques for determining fish presence/absence in the clear, shallow streams that are typical of the study area. Captured fish were identified to species, enumerated, measured for fork length (mm), and examined for evidence of any external health issues including deformities, erosions, lesions, or tumours (DELTs), physical injuries, and overall health (i.e., skinny individuals).

The 2024 habitat assessments at remediation sites (both completed and pending sites) were conducted in greater detail in order to better compare pre- and post-remediation conditions and quantify predicted improvements to habitat and fish access. Detailed habitat data were recorded at 20 m, 60 m, and 100 m intervals (i.e., along transects across the stream channel) upstream and downstream of the culvert. Data collected included bankfull and wetted widths, water depths and velocities, stream morphology, and proportions of various substrate sizes. Representative photos of habitat were taken at each transect. The condition of culverts was noted and water inflow and outflow velocity and depth were measured for each fish-bearing culvert at each crossing. Results of the 2024 stream crossing monitoring surveys are summarized in Section 3.0. Detailed results for each of the completed and pending remediated crossings are presented in Appendix B.

Compensation works completed for the Tote Road prior to 2009 are described in detail in Knight Piésold (2007a) and the results of recent compensation works (e.g., rustic fishway at BG-30) and detailed fish habitat and fish use surveys from 2009 to 2023 are presented in Baffinland (2009 to 2023, incl.). Following successful completion of habitat works at BG-30 (Baffinland 2012), there was a net habitat gain of approximately 1,050 km², which together with other gains met the compensation goals described in Knight Piésold (2007a). Fish presence upstream of the fishway in BG-30 has been confirmed during site visits from 2013-2024, indicating continuous structural integrity and successful fish passage.

Monitoring will continue in 2025 to assess fish passage at crossings on fish-bearing streams and to assess the condition and performance of the crossings including the crossings with significant modification as a result of recent upgrades and remedial works completed in 2024 and winter 2024/2025 that have been approved by DFO.

SECTION 3.0 - AQUATIC MONITORING

An aquatic monitoring program was developed to ensure that all measures and works specified in the No Net Loss and Monitoring Plan (Knight Piésold 2007a), as well as the *Fisheries Act* Authorization and amendments have been implemented and are functioning as intended. Details of aquatic monitoring conducted up to 2023 are provided in Knight Piésold (2007b, 2008) and Baffinland (2009 to 2023, incl.). Aquatic monitoring in 2024 focused on assessing any changes to fish habitat and fish passage at all fish-bearing crossings and to collect detailed habitat data following completion of winter 2024 remediation works and in preparation for additional remediation works to be completed in subsequent years.

3.1 CONSTRUCTION AND TURBIDITY MONITORING

There was no in-stream construction work at HADD, compensation, or LOA classification crossings with the exception of CV-049. An unprecedented rainfall event experienced on September 20, resulted in the washout of crossing. The Construction Summary Report Tote Road Emergency Remediation submitted in February outlines associated water quality monitoring. Water quality was effectively controlled by mitigations associated with the emergency construction such as coir logs and silt fences.

3.2 WATER QUALITY MONITORING OF BASELINE FISHERIES CULVERTS

Water quality monitoring data from Knight Piésold baseline monitoring work performed during 2005 and 2006, in conjunction with monitoring of the same crossings from 2015-2024 are presented in Table 2.

3.3 FISH USE ASSESSMENTS

Spring fish use assessments were conducted at forty-nine (49) fish-bearing crossings along the Tote Road from 11-16 July 2024 (Figure 1, Table 3). Velocities, and depths within the culverts at the inflow and outflow and the height of any perches were recorded for each crossing.

Four of the bridge crossings (CV-128, BG-50, CV-217, and CV-223) could only be surveyed visually due to deep water and/or higher flows that made for unsafe wading conditions. The smaller side channel at BG-50 with a culvert crossing could also not be fished due to an electrofisher malfunction during the site visit. In addition, electrofishing could not be conducted at crossing CV-115 due it being nearly dry.

Tables 4 and 5 present catch statistics for Arctic Char and Ninespine Stickleback, respectively, from each of the 49 sites surveyed in spring 2024. See Appendix B for additional site-specific habitat

details, photographs, and a summary of fish habitat use at completed and planned remediation sites.

Table 6 summarizes habitat and fish use assessments for the surveyed sites and provides descriptions of potential fish passage or habitat issues noted in the spring survey. A detailed summary of issues observed is provided in Section 3.4.

Overall, catch totals in 2024 were higher relative to previous years at many crossings as presented in previous annual reports (Baffinland, 2009 to 2023, incl.). These increased catch rates were attributed to the timing of the survey when water velocities were lower, water temperatures were higher, and fish had more time to disperse from overwintering habitat (i.e., fish movements from overwintering habitat into tributary streams were largely unrestricted by environmental parameters at the time of the survey). Spring electrofishing surveys captured or observed five hundred and fourteen (514) juvenile Arctic Char at forty-three (43) crossings (Table 4).

Char were absent at six sites (CV-115, CV-128a, CV-211, CV-212, CV-030, and BG-03) in spring 2024. Of the remaining 43 sites, char were not captured or observed upstream of 12 crossings surveyed in 2024 (i.e., CV-114, CV-106, CV-104, CV-078, CV-061b, CV-040, CV-215, CV-021, CV-186, CV-187, and BG-33). Some of these absences are due to potential fish passage issues (CV-114, CV-061b, BG-33, CV-215, and CV-186) as described in Section 3.4. The remaining crossings do not have any obvious fish passage issues. The absence of char upstream of these crossings may be due to a variety of environmental factors such as distance from overwintering habitat (e.g., CV-040), higher upstream gradient (e.g., CV-104), and/or minimal available upstream habitat (e.g., CV-187).

Site CV-115, which had been previously identified as fish-bearing (in 2010) but has had insufficient flows since 2016, was nearly dry when visited in spring 2024 and electrofishing could not be conducted due to insufficient water depth in the channel; the site did not provide fish habitat due to lack of water. The most recent survey during which the stream at CV-115 was sufficiently wetted to provide fish habitat during the survey periods was in 2016, when it consisted of isolated pools each containing a few stranded juvenile Arctic Char (Baffinland 2016). CV-128a, CV-030, and BG-03 are all characterized by habitat that is typically avoided by juvenile Arctic Char (very shallow, low flow, fine substrate, and abundant in-stream vegetation). Ninespine Stickleback, which prefer this habitat, were observed at all three of these sites; stickleback were captured upstream of the crossings at CV-128a and CV-30 indicating successful fish passage. The crossing area at CV-211 has remained fishless since monitoring of the stream started in 2019 despite no obvious downstream barriers preventing access from the nearest potential overwintering lake (Muriel Lake), while juvenile char have only rarely been found at the CV-212 crossing area.

Seventy-five (75) Ninespine Stickleback were captured at thirteen (13) of the crossings in spring 2024 (Table 5). Most of the sites where stickleback were observed in 2024 are characterized by habitat preferred by this species (very shallow, low flow, fine substrate, and abundant in-stream vegetation).

Site-specific Arctic Char catches in spring ranged from zero to fifty-five (55) fish and catch-per-unit-effort (CPUE) ranged from 0.00 to 11.10 fish/minute (Table 4). Site-specific Ninespine Stickleback catches in spring ranged from zero to fifteen (15) fish and CPUE ranged from 0.00 to 2.85 fish/minute (Table 5).

The fork length of captured Arctic Char ranged from 30-242 mm (mean = 80 mm; Table 4). More than half (54%) of the catch had fork lengths between 50-79 mm with a mode of 60-69 mm (Figure 2); these lengths are lower than observed in 2023 but consistent with most other survey years. Sampling in 2023 occurred near peak freshet when flows were higher and water temperatures lower and only the larger juveniles had initiated upstream movements. Ninespine Stickleback fork length ranged in size from 19-87 mm (Table 5).

There were no DELTs present on any of the fish captured in the spring 2024 survey, which is typical for char and stickleback in the study area. Additionally, no abnormal behaviour, physical injuries, or other indications of poor condition of fish were observed during the field programs.

3.4 REMEDIATION WORKS

Tote Road monitoring conducted in spring 2024 identified seventeen (17) sites with potential issues requiring remediation at the culvert crossings (Table 6). Six of these sites (CV-114, CV-111, BG-50, BG-27, CV-224, CV-225) are part of planned remediation initiatives. However, due to lessons learned regarding select culvert foundation failures on crossings installed in February – May 2024, Baffinland is re-assessing engineering requirements that are needed to inform robust crossing design to avoid permafrost degradation and crossing stability concerns. Fish passage issues were observed at three sites that experienced foundation degradation from 2024 remediation efforts (CV-106, CV-102, and CV-216) where remediation was undertaken in winter 2024. Fish passage was remediated further in July 2024 by amending the aprons to crossings CV 106 and CV 102. No habitat or fish passage issues were identified at the remaining four sites (CV-059, CV-057, BG-04, and CV-001) where remediation was completed in winter 2024. Baffinland is continuing to discuss proposed remediation actions with the DFO to decide upon site specific practical remediation and the implementation schedule.

Twelve (12) crossings (CV-129, CV-114, CV-111, CV-061, CV-061b, BG-50, BG-33, CV-214, CV-215, and CV-224, CV-225, CV-186) had perched fish passage culverts in spring 2024. Unusually low

water levels observed during the survey contributed to the perching at five of these sites. The perching at CV-061, CV-061b, BG-33, CV-214, and CV-215 only occurs when water levels are very low. Culverts at BG-27 and CV-186 are badly damaged potentially impeding some and all upstream movements, respectively. Site BG-03 has a step-pool approach to the culvert that, while suitable for char use, may prevent stickleback access upstream. To date, only stickleback have been captured in this stream, though it is likely that the natural stream gradient at the crossing would prevent stickleback movements in the absence of the crossing. Despite perching, Arctic Char were observed upstream of the crossings at CV-129, CV-111, CV-061, CV-214, CV-224, CV-225 indicating successful fish passage at some time in spring 2024.

Perching observed at CV-106, CV-102, and CV-216 in previous years was remediated in winter 2024. However, new issues at these crossings were observed in spring 2024. Rocks used to construct the aprons and in-culvert velocity refugia at sites CV-106 and CV-102, resulted in impassable subsurface flows as water levels decreased following freshet. Juvenile char stranding was observed upstream of crossing CV-102. At crossing CV-216, sediment accumulation was observed among the newly placed boulders, as per design, in the culvert and apron, notably upstream. Fish were captured upstream of this crossing in spring 2024.

The spring 2023 survey identified that culverts at CV-057 and CV-059 were partially buried by sediment. These culverts have since been remediated in winter 2024 and both crossings allowed unimpeded fish passage in spring 2024 with negligible erosion of road embankments and improved fish habitat upstream and downstream of the culverts. Char were observed upstream of both crossings at the time of the survey. There are no current issues at either of these crossings.

Baffinland has discussed completed and proposed remediation works with the DFO prior to instream remediation work proceeding at seven (7), priority fish bearing crossings during winter 2024. However, following construction significant settlement of select culvert crossings was observed along the culvert crossing alignments as result of suspected permafrost thaw. The discovery of these design challenges has warranted additional engineering work and collaboration with DFO, in order to ensure the unique North Baffin Island environment is well understood based on lessons learned in the field, and to ensure future functionality of culvert crossings. Further engineering work is currently being conducted and an updated schedule for the additional thirteen crossings that will incorporate lessons learned from historical failure modes is being developed with external advice. Planned modifications to culverts and road embankments are to comply with the *Fisheries Act* and the interim codes of practice for culvert maintenance and temporary cofferdams and diversion channels (as published).

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TABLES AND FIGURES

Table 1. Erosion and Sediment Controls Implemented in 2024

Approximate Road KM	Crossing ID	Date	Easting	Northing	Upstream	Downstream	ESC Controls
17	CV-128	03-Jul-24	513680	7966148		Crossing required maintenance along the west road berm to mitigate sediment and erosion from occurring along the road embankment.	Berm was sloped and material was clawed back from the tundra.
31	CV-112	23-Jun-24	521033	7954935		Pile of snow mixed with aggregate was identified adjacent of the road near a watercourse.	Snow mixed with aggregate was removed to mitigate potential for sediment transport.
33.2	CV-106	17-May-24	521663	7953392	Culvert Remediation Program as per February 5, 2024 Corrective Measures Order and Permanent Crossing Plan accepted by DFO and NWB.	Culvert Remediation Program as per February 5, 2024 Corrective Measures Order and Permanent Crossing Plan accepted by DFO and NWB.	Constructed engineered design during frozen conditions, removed old culverts and replaced with larger low flow and high flow culverts, re-armoured embankments with rip rap.
36	CV-102	17-May-24	521934	7950591	Culvert Remediation Program as per February 5, 2024 Corrective Measures Order and Permanent Crossing Plan accepted by DFO and NWB.	Culvert Remediation Program as per February 5, 2024 Corrective Measures Order and Permanent Crossing Plan accepted by DFO and NWB.	Constructed engineered design during frozen conditions, removed old culverts and replaced with larger low flow and high flow culverts, re-armoured embankments with rip rap.
		26-Jul-24			Over-sized aggregate within inlet apron identified as a potential issue to fish passage.	Over-sized aggregate within outlet apron identified as a potential issue to fish passage.	Aggregate in aprons was thinned out to improve fish passage.
51	CV-078	02-Oct-24	525852	7936787	Unprecedented rain event in September resulted in northbound traffic lane being washed out and culvert inlets detached.	Unprecedented rain event in Septemebr resulted in severe road surface and embankment degradation.	Re-established safe travel on the southbound lane of the road and re-armoured downstream embankment. Culvert inlets and re-establishing northbound lane yet to be completed.
58	CV-060	05-Jul-24	527622	7930342		Existing silt fence in disrepair.	Replaced existing silt fence to mitigate sediment transport.
59.5	CV-059	11-Apr-24	528094	7929347	Culvert Remediation Program as per February 5, 2024 Corrective Measures Order and Permanent Crossing Plan accepted by DFO and NWB.	Culvert Remediation Program as per February 5, 2024 Corrective Measures Order and Permanent Crossing Plan accepted by DFO and NWB.	Constructed engineered design during frozen conditions, removed old culverts and replaced with larger low flow and high flow culverts, re-armoured embankments with rip rap.
60.5	CV-057	11-Apr-24	528379	7928657	Culvert Remediation Program as per February 5, 2024 Corrective Measures Order and Permanent Crossing Plan accepted by DFO and NWB.	Culvert Remediation Program as per February 5, 2024 Corrective Measures Order and Permanent Crossing Plan accepted by DFO and NWB.	Constructed engineered design during frozen conditions, removed old culverts and replaced with larger low flow and high flow culverts, re-armoured embankments with rip rap.
		26-Jul-24			Over-sized aggregate within inlet apron identified as a potential issue to fish passage.		Aggregate in apron was thinned out to improve fish passage.

Approximate Road KM	Crossing ID	Date	Easting	Northing	Upstream	Downstream	ESC Controls
63	BG-50	27-Jun-24	529294	7926852	Check dams associated with snow stockpile run-off required sediment removal.		Sediment was removed from the rip rapped channel and check dams.
63.5	CV-049	28-Sep-24	529654	7926545	Unprecedented rain event in Septemebr resulted in wash-out of the road and culvert crossing.	Unprecedented rain event in September resulted in wash-out of the road and culvert crossing.	Emergency measures plan re-construction of culvert crossing and roadway, re-armoured road embankments. Silt fence, geotextile and coir logs and water quality monitoring implemented as watercourse protection during construction.
72.5	CV-040	23-Jul-24	535165	7920336		Roadside check dams were identified for rip rap improvements and repairs.	Excavated sediment, added rip rap where needed to ensure ongoing performance of the structure and mitigate sediment transport.
81	CV-216	25-May-24	542764	7921724	Culvert Remediation Program as per February 5, 2024 Corrective Measures Order and Permanent Crossing Plan accepted by DFO and NWB.	Culvert Remediation Program as per February 5, 2024 Corrective Measures Order and Permanent Crossing Plan accepted by DFO and NWB.	Constructed engineered design during frozen conditions, removed old culverts and replaced with larger low flow and high flow culverts, re-armoured embankments with rip rap.
94.1	BG-04	25-Apr-24	553250	7915100	Culvert Remediation Program as per February 5, 2024 Corrective Measures Order and Permanent Crossing Plan accepted by DFO and NWB.	Culvert Remediation Program as per February 5, 2024 Corrective Measures Order and Permanent Crossing Plan accepted by DFO and NWB.	Constructed engineered design during frozen conditions, removed old culverts and replaced with larger low flow and high flow culverts, re-armoured embankments with rip rap.
		26-Jul-24			Over-sized aggregate within inlet apron identified as a potential issue to fish passage.		Aggregate in apron was thinned out to provide improved fish passage.
94.5	CV-001	21-Apr-24	553544	7914897	Culvert Remediation Program as per February 5, 2024 Corrective Measures Order and Permanent Crossing Plan accepted by DFO and NWB.	Culvert Remediation Program as per February 5, 2024 Corrective Measures Order and Permanent Crossing Plan accepted by DFO and NWB.	Constructed engineered design during frozen conditions, removed old culverts and replaced with larger low flow and high flow culverts, re-armoured embankments with rip rap.
97.5	CV-224	26-Jul-24	556238	7915044		Existing silt fence in disrepair.	Installed additional silt fences parallel and below the existing one.
		22-Aug-24				Existing silt fence in disrepair.	Installed additional silt fence.
99.5	CV-225	11-Aug-24	557421	7915187		Erosion was identified in proximity to the crossing.	Maintenance was completed to restore road embankment and reduce erosion.
100	BG-01	26-Jul-24	558000	7914928		Existing silt fence in disrepair.	Installed additional silt fences parallel and below the existing one.
102	CV-186	22-Jul-24	560705	7913498	Silt fence along the south bank was in disrepair.		Removed and replaced the damaged silt fence.
		01-Aug-24			Pooling water on tote road near CV-186.	Pooling water on tote road near CV-186.	Rock armouring was added to the downstream roadside berm.
		29-Sep-24				Multiday rain event caused turbid water to enter stream leading to Sheradown Lake.	A rock weir was constructed on the west side of the road.
102.5	CV-187	29-Sep-24	560957	7913414	Rain event caused turbid water approximately 140 m upstream of CV-187.		Spring berms were placed in stream approximately 140 m upstream of CV-187

Note: green shading denotes cuvlert replacement

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date							
				2006			2015				
				14-Jun-06	03-Aug-06	08-Sep-06	03-Jul-15	03-Jul-15	12-Aug-15	12-Aug-15	
							US	DS	US	DS	
In Situ Parameters											
Temperature	°C	-	-	0.32	10.41	3.66	-	-	7.2	7.2	
Specific Conductance	µS/cm	-	-	0.133	0.12	0.16	0.53	0.58	0.139	0.139	
Dissolved Oxygen	mg/L	-	<9.5	13.02	11.71	13.03	-	-	-	-	
Dissolved Oxygen	%	-	-	-	-	-	-	-	105.9	105.1	
pH	pH units	-	6.5 - 9.0	8.18	8.12	8.21	8.33	8.14	8.3	8.2	
Wetted Width	m	-	-	76	120	99	-	-	50	50	
Average Depth	m	-	-	too much ice	0.3	0.6	-	-	0.5	0.5	
Flow Rate	m ³ /s	-	-	-	26.73	-	-	-	-	-	
Physical Parameters											
pH	pH units	0.1	6.5 - 9.0	7.85	7.37	7.51	7.79	7.84	8.16	8.04	
Conductivity	µS/cm	1	-	145	125.00	166	-	-	-	-	
Turbidity	NTU	0.1	-	0.6	0.70	-	1.1	1.19	0.45	0.45	
Hardness	mg/L as CaCO ₃	-	-	73	65.0	85	42	42.0	63.0	62.0	
Total Suspended Solids	mg/L	1 - 1.4	Variable ⁸	-	-	-	<2.0	<2.0	<2.0	<2.0	
Total Dissolved Solids	mg/L	18 - 21	-	94	81	108	77	67	72 *	67 *	
Dissolved Anions											
Alkalinity	mg/L as CaCO ₃	2.0	-	72	67	86	37	41	61	61	
Bromide	mg/L	-	-	<0.05	<0.05	<0.05	-	-	-	-	
Chloride	mg/L	0.5	120	1	<1	1	0.53	0.54	0.85	0.89	
Fluoride	mg/L	-	-	-	-	-			-	-	
Sulfate	mg/L	-	-	2	<1	4	0.42	0.47	0.0039	0.0031	
Nutrients											
NH ₃ +NH ₄	mg/L N	-	0.021 - 231 ^a	0.1	0.03	0.08	<0.15	<0.15	<0.15	0.19	
Nitrite	mg/L N	0.01	0.060	<0.005	<0.005	0.016	-	-	-	-	
Nitrate	mg/L N	0.02	3.0	<0.10	<0.10	<0.10	<0.020	<0.02	<0.020	<0.020	
Nitrate + Nitrite	mg/L N	-	-	<0.10	<0.10	<0.10	-	-	-	-	
Ammonia, total as N	mg/L	0.005	Variable ^a	-	-	-	<0.050	<0.050	-	-	
Total Phosphorus	mg/L	0.002	0.01	<0.01	<0.01	0.03	0.0036	0.0044	0.0039	0.0031	
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	
Organic Compounds											
Phenols	mg/L	-	0.004	<0.001	<0.001	<0.001	-	-	-	-	
Dissolved Organic Carbon	mg/L	0.5	-	-	-	-	1.7	1.60	1.7	1.6	
Total Organic Carbon	mg/L	0.5	-	-	-	-	1.9	1.90	1.7	1.7	
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	<0.015	<0.015	<0.15	0.19	
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date							
				2006			2015				
				14-Jun-06	03-Aug-06	08-Sep-06	03-Jul-15	03-Jul-15	12-Aug-15	12-Aug-15	
							US	DS	US	DS	
Total Metals and Non-Metals											
Aluminum	mg/L	0.003	Variable ^f	0.006	0.01	0.101	0.029	0.029	0.022	<0.010	
Antimony	mg/L	0.0001	-	-	-	-	-	-			
Arsenic	mg/L	0.0001	0.005	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.00010	<0.00010	
Barium	mg/L	0.0001	-	<0.01	<0.01	<0.01	-	-	-	-	
Beryllium	mg/L	0.00002	-	-	-	-	-	-	-	-	
Bismuth	mg/L	0.00005	-	-	-	-	-	-	-	-	
Boron	mg/L	0.01	1.5	<0.01	<0.01	<0.01	-	-	-	-	
Cadmium	mg/L	0.000005	Variable ^c	<0.0001	<0.0001	<0.0001	<0.000090	<0.000090	<0.000010	<0.000010	
Calcium	mg/L	0.05	-	17	16	20	9.47	9.42	15.0	15.2	
Cesium	mg/L	0.00001	-	-	-	-	-	-	-	-	
Chromium	mg/L	0.0005	-	<0.001	<0.001	<0.001	-	-	-	-	
Cobalt	mg/L	0.0001	Variable ^c	<0.0002	<0.0002	<0.0002	-	-	-	-	
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	
Iron	mg/L	0.01	0.300	<0.03	<0.03	0.12	<0.050	<0.050	<0.050	<0.050	
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.001	<0.001	<0.001	<0.00050	<0.00050	<0.00010	<0.00010	
Lithium	mg/L	0.001	-	-	-	-	-	-	-	-	
Magnesium	mg/L	0.005	-	7	6	8	4.24	4.27	6.97	7.23	
Manganese	mg/L	0.0001	Variable ^c	<0.01	<0.01	<0.01	0.0012	0.0013	0.00099	0.00061	
Mercury	mg/L	0.000005	0.000026	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010	<0.000010	<0.000010	
Molybdenum	mg/L	0.00005	0.073	<0.005	<0.005	<0.005	<0.00050	<0.00050	<0.00050	<0.00050	
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.005	<0.005	<0.005	<0.0010	<0.0010	<0.0010	<0.0010	
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	
Potassium	mg/L	0.05	-	0.51	0.35	0.51	<1.0	<1.0	0.448	0.454	
Rubidium	mg/L	0.0002	-	-	-	-					
Selenium	mg/L	0.00005	0.001	<0.001	<0.001	<0.001	<0.00040	<0.00040	<0.000050	<0.000050	
Silicon	mg/L	0.1	-	-	-	-	-		-	-	
Silver	mg/L	0.00001	0.25	<0.0001	<0.0001	<0.0001	-	-	-	-	
Sodium	mg/L	0.05	-	0.61	0.34	1.15	<0.50	<0.50	0.62	0.63	
Strontium	mg/L	0.0002	0.25	0.012	0.01	0.015	-	-	-	-	
Sulphur	mg/L	0.5	-	-	-	-	-		-	-	
Tellurium	mg/L	0.0002	-	-	-	-	-		-	-	
Thallium	mg/L	0.00001	0.0008	-	-	-	<0.00030	<0.00030	<0.000010	<0.000010	
Thorium	mg/L	0.0001	-	-	-	-	-		-	-	
Tin	mg/L	0.0001	-	<0.01	<0.01	<0.01	-	-	-	-	
Titanium	mg/L	0.0003	-	-	-	-	-		-	-	
Tungsten	mg/L	0.0001	-	-	-	-	-		-	-	
Uranium	mg/L	0.00001	0.015	-	-	-	<0.0010	<0.0010	0.00135	0.00135	
Vanadium	mg/L	0.0005	0.12	<0.001	<0.001	<0.001	-	-	-	-	
Zinc	mg/L	0.003	0.03	<0.01	<0.01	<0.01	<0.0030	<0.0030	<0.0030	<0.0030	
Zirconium	mg/L	0.0002	-	-	-	-	-	-	-	-	

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date							
				2006			2015				
				14-Jun-06	03-Aug-06	08-Sep-06	03-Jul-15	03-Jul-15	12-Aug-15	12-Aug-15	
							US	DS	US	DS	
Dissolved Metals and Non-Metals											
Aluminum	mg/L	0.0010	-	<0.005	<0.005	0.005	0.029	0.0108	0.0068	0.0122	
Arsenic	mg/L	0.00010	-	<0.001	<0.001	<0.001	<0.00010	<0.00010	<0.00010	<0.00010	
Barium	mg/L	0.00010	-	<0.01	<0.01	<0.01	-	-	-	-	
Boron	mg/L	0.010	-	<0.01	<0.01	<0.01	-	-	-	-	
Cadmium	mg/L	0.0000050	-	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010	<0.000010	<0.000010	
Calcium	mg/L	0.050	-	16	16	21	9.65	9.46	14.1	14.2	
Chromium	mg/L	0.0005	-	<0.001	<0.001	<0.001	-	-	-	-	
Cobalt	mg/L	0.0001	-	<0.0002	<0.0002	<0.0002	-	-	-	-	
Copper	mg/L	0.0002	-	<0.001	<0.001	<0.001	0.00034	0.00033	0.00041	0.00043	
Iron	mg/L	0.01	-	<0.03	<0.03	<0.03	0.030	0.015	<0.010	0.014	
Lead	mg/L	0.00005	Variable ^e	<0.001	<0.001	<0.001	<0.000050	<0.000050	<0.000050	<0.000050	
Magnesium	mg/L	0.005	-	8	6	8	4.44	4.46	6.62	6.47	
Manganese	mg/L	0.0001	-	<0.01	<0.01	<0.01	0.00102	0.00072	0.00064	0.00084	
Mercury	mg/L	0.000005	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	
Molybdenum	mg/L	0.00005	-	<0.005	<0.005	<0.005	0.000059	0.000063	0.000123	0.000123	
Nickel	mg/L	0.0005	-	<0.005	<0.005	<0.005	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	
Potassium	mg/L	0.05	-	0.52	0.26	0.55	0.361	0.348	0.465	0.463	
Selenium	mg/L	0.000050	-	<0.001	<0.001	<0.001	<0.000050	<0.000050	<0.000050	<0.000050	
Silver	mg/L	0.00001	-	<0.0001	<0.0001	<0.0001	-	-	-	-	
Sodium	mg/L	0.05	-	0.64	0.28	0.6	<0.50	<0.50	0.62	0.62	
Strontium	mg/L	0.0002	0.25	0.012	0.011	0.015	-	-	-	-	
Thallium	mg/L	0.000010	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	
Tin	mg/L	0.00010	-	<0.01	<0.01	<0.01	-	-	-	-	
Uranium	mg/L	0.000010	-	-	-	-	0.000315	0.000317	0.00127	0.00127	
Vanadium	mg/L	0.00050	-	<0.001	<0.001	<0.001	-	-	-	-	
Zinc	mg/L	0.0010	Variable ^e	<0.01	<0.01	<0.01	0.0021	<0.0010	<0.0010	0.0011	
Miscellaneous (Water)											
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2016				2017		2018			
				30-Jun-16	30-Jun-16	25-Aug-16	25-Aug-16	30-Jun-17	30-Jun-17	03-Jul-18	03-Jul-18	02-Sep-18	02-Sep-18
				US	DS	DS	US	US	DS	US	DS	US	DS
In Situ Parameters													
Temperature	°C	-	-	6.1	7.7	9.6	9.2	3.3	3.6	5.9	5.9	4.9	4.9
Specific Conductance	µS/cm	-	-	0.390	0.800	0.169	0.116	0.147	0.1575	0.0786	0.0785	0.1357	0.1375
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	103.5	106.2	101.6	103.7	102.4	102.3	97.9	97.8	102.2	98.5
pH	pH units	-	6.5 - 9.0	7.9	8.3	8.09	8.05	7.62	7.67	8.00	8.16	8.13	7.78
Wetted Width	m	-	-	-	-	-	-	30	30	~25	~25	~40	~35
Average Depth	m	-	-	-	-	-	-	5	5	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	60	51	-	-	-	-
Physical Parameters													
pH	pH units	0.1	6.5 - 9.0	8.11	8.15	8.08	8.20	7.83	7.84	7.82	7.83	8.22	8.17
Conductivity	µS/cm	1	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	0.1	-	10.2	10.8	0.28	0.28	2.43	2.27	2.11	1.92	0.22	0.28
Hardness	mg/L as CaCO₃	-	-	58	53	84.0	84.0	38	42.0	40	41	81	79.0
Total Suspended Solids	mg/L	1 - 1.4	Variable ⁸	54.8	44.4	<2.0	7.9	8.4	13.5	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids	mg/L	18 - 21	-	50	240	78	79	37	44	51	51	85	85
Dissolved Anions													
Alkalinity	mg/L as CaCO₃	2.0	-	42	38	84	84	29	34	37	37	83	83
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	0.62	0.60	1.46	1.49	0.89	0.88	0.58	0.61	1.36	1.39
Fluoride	mg/L	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.025	0.026
Sulfate	mg/L	-	-	0.38	0.36	1.18	1.19	0.38	0.39	0.33	0.37	0.73	0.72
Nutrients													
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	<0.15	<0.15	<0.15	<0.15	0.16	<0.15	-	-	-	-
Nitrite	mg/L N	0.01	0.060	-	-	-	-	-	-	-	-	-	-
Nitrate	mg/L N	0.02	3.0	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	-	-
Total Phosphorus	mg/L	0.002	0.01	0.0677	0.0354	0.0044	0.0085	0.0107	0.0102	0.0045	0.0046	<0.0030	<0.0030
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds													
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	<1.0	<1.0	1.8	1.6	1.84	1.79	1.37	1.33	2.04	0.62
Total Organic Carbon	mg/L	0.5	-	1.8	1.4	1.8	2.9	2.09	2.15	1.54	1.85	2.30	0.54
Total Kjeldahl Nitrogen	mg/L	-	-	<0.15	<0.15	<0.15	<0.15	0.16	<0.15	<0.15	<0.15	<0.15	<0.15
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2016				2017		2018			
				30-Jun-16	30-Jun-16	25-Aug-16	25-Aug-16	30-Jun-17	30-Jun-17	03-Jul-18	03-Jul-18	02-Sep-18	02-Sep-18
				US	DS	DS	US	US	DS	US	DS	US	DS
Total Metals and Non-Metals													
Aluminum	mg/L	0.003	Variable ^f	0.827	0.759	<0.010	0.014	0.123	0.129	0.047	0.0587	0.0085	0.0053
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	0.00023	0.00022	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.0001	-	0.00801	0.00742	0.00663	0.00672	0.00378	0.00386	0.00315	0.00315	0.00589	0.00589
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	12.5	11.6	19.1	19.4	8.61	9.76	9.45	9.66	18.6	18.6
Cesium	mg/L	0.00001	-	0.000062	0.000058	<0.000010	<0.000010	0.000019	0.000023	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	0.00125	0.00115	<0.00050	<0.00050	0.00054	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	0.00042	0.00038	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	0.0014	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Iron	mg/L	0.01	0.300	0.805	0.734	<0.050	<0.050	0.133	0.147	0.036	0.049	0.012	0.012
Lead	mg/L	0.00005	0.001 - 0.007 ^c	0.00069	0.00061	<0.00010	<0.00010	0.000125	0.000158	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.001	-	0.0016	0.0014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	0.005	-	6.39	5.86	8.93	8.60	4.12	4.18	4.04	4.19	8.41	7.96
Manganese	mg/L	0.0001	Variable ^c	0.0247	0.0215	0.00181	0.00265	0.00658	0.0065	0.00211	0.00223	0.00118	0.00122
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	0.073	0.000059	0.000062	0.000157	0.000164	0.000059	0.000078	0.000057	0.000066	0.000122	0.000127
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	0.00093	0.00085	<0.00050	<0.00050	<0.00050	<0.00050	0.00428	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	0.054	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.687	0.670	0.564	0.561	0.452	0.455	0.326	0.330	0.491	0.491
Rubidium	mg/L	0.0002	-	0.00235	0.00231	0.00121	0.00122	0.00093	0.00093	0.00072	0.00074	0.00094	0.00095
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	1.98	1.75	0.437	0.451	0.54	0.54	0.32	0.33	0.41	0.4
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	<0.50	<0.50	0.89	0.88	0.53	0.520	0.332	0.341	0.75	0.737
Strontium	mg/L	0.0002	0.25	0.0074	0.0070	0.0114	0.0116	0.0047	0.0056	0.0057	0.0058	0.0125	0.0129
Sulphur	mg/L	0.5	-	<0.50	<0.50	<0.50	0.64	<0.50	<0.50	<0.50	<0.50	0.62	<0.50
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	0.000016	0.000014	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	0.00138	0.00131	<0.00010	<0.00010	0.00012	0.00015	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	0.0256	0.0238	<0.00030	0.00042	0.00399	0.0045	0.00145	0.00164	<0.00030	<0.00030
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000505	0.000481	0.00212	0.00209	0.000299	0.000353	0.000346	0.000347	0.00147	0.00154
Vanadium	mg/L	0.0005	0.12	0.00163	0.00149	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	0.00083	0.00076	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2016				2017		2018			
				30-Jun-16	30-Jun-16	25-Aug-16	25-Aug-16	30-Jun-17	30-Jun-17	03-Jul-18	03-Jul-18	02-Sep-18	02-Sep-18
				US	DS	DS	US	US	DS	US	DS	US	DS
Dissolved Metals and Non-Metals													
Aluminum	mg/L	0.0010	-	-	-	-	-	-	-	-	-	-	-
Arsenic	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-
Barium	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/L	0.010	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/L	0.0000050	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	0.050	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-
Iron	mg/L	0.01	-	-	-	-	-	-	-	-	-	-	-
Lead	mg/L	0.00005	Variable ^e	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.005	-	-	-	-	-	-	-	-	-	-	-
Manganese	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/L	0.000005	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	mg/L	0.00005	-	-	-	-	-	-	-	-	-	-	-
Nickel	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-	-
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.000050	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.00001	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-
Strontium	mg/L	0.0002	0.25	-	-	-	-	-	-	-	-	-	-
Thallium	mg/L	0.000010	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-
Uranium	mg/L	0.000010	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/L	0.00050	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/L	0.0010	Variable ^e	-	-	-	-	-	-	-	-	-	-
Miscellaneous (Water)													
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date											
				2019				2020							
				21-Jun-19	21-Jun-19	10-Aug-19	10-Aug-19	22-Jun-20	22-Jun-20	22-Jun-20	19-Jul-20	19-Jul-20	19-Jul-20	14-Aug-20	14-Aug-20
				US	DS	US	DS	US	US Field Blank	DS	US	DS	DS Travel Blank	US	DS
In Situ Parameters															
Temperature	°C	-	-	6.1	6.0	14.5	14.2	6.4	-	8.1	16.5	17.1	-	12.3	13.5
Specific Conductance	µS/cm	-	-	0.0756	0.0754	0.1712	0.1705	0.107	-	0.1193	0.2385	0.2533	-	0.2531	0.2825
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	12.41	-	12.49	10.46	11.02	-	100.6	124.2
Dissolved Oxygen	%	-	-	102.2	101.3	107.3	105.4	100.8	-	105.5	106.8	114.7	-	10.82	12.95
pH	pH units	-	6.5 - 9.0	7.92	8.00	8.32	8.25	7.91	-	8.04	8.38	8.4	-	8.28	8.36
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m ³ /s	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters															
pH	pH units	0.1	6.5 - 9.0	7.91	7.77	8.25	8.32	7.78	5.71	7.89	8.29	8.29	6.27	8.21	8.32
Conductivity	µS/cm	1	-	-	-	-	-	111	<3.0	124	249	269	<3.0	257	298
Turbidity	NTU	0.1	-	0.48	0.66	0.24	0.31	0.85	<0.10	1.2	0.52	1.08	<0.10	0.73	1.34
Hardness	mg/L as CaCO ₃	-	-	44.7	45.1	85.6	85.9	58	<0.50	63.8	129	138	<0.50	137	158
Total Suspended Solids	mg/L	1 - 1.4	Variable ⁸	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.7	<2.0	<2.0	<2.0	2.2	<2.0
Total Dissolved Solids	mg/L	18 - 21	-	49	54	112	108	56	<10	68	173	148	<10	159	184
Dissolved Anions															
Alkalinity	mg/L as CaCO ₃	2.0	-	47	47	93	92	52	<10	56	123	494	<10	125	129
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	0.52	0.55	1.31	1.33	3.11	<0.50	4.29	7.62	12.4	<0.50	8.83	19.7
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients															
NH ₃ +NH ₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0010	<0.0010
Nitrate	mg/L N	0.02	3.0	<0.020	<0.020	<0.020	<0.020	0.021	<0.020	<0.020	<0.020	<0.020	<0.020	0.109	0.0961
Nitrate + Nitrite	mg/L N	-	-	<0.022	<0.022	<0.022	<0.022	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.010	<0.010	<0.010	<0.010	0.016	<0.010	<0.010	<0.010	0.011	<0.010	0.0073	0.0086
Total Phosphorus	mg/L	0.002	0.01	0.0033	0.0033	<0.0030	<0.0030	0.0031	<0.0030	0.0067	0.0047	0.0092	<0.0030	0.0038	0.0052
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds															
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	1.72	1.74	1.67	1.96	3.93	1.08	3.91	5.74	5.6	0.95	5.6	5.36
Total Organic Carbon	mg/L	0.5	-	2.17	2.32	2.05	2.19	3.92	1.36	3.95	6.16	6.05	1.25	5.44	5.17
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date											
				2019				2020							
				21-Jun-19	21-Jun-19	10-Aug-19	10-Aug-19	22-Jun-20	22-Jun-20	22-Jun-20	19-Jul-20	19-Jul-20	19-Jul-20	14-Aug-20	14-Aug-20
				US	DS	US	DS	US	US Field Blank	DS	US	DS	DS Travel Blank	US	DS
Total Metals and Non-Metals															
Aluminum	mg/L	0.003	Variable ^f	0.0279	0.0314	0.0078	0.0078	0.0298	0.0192	0.071	0.0103	0.0233	<0.0050	0.0049	0.0208
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	0.0001	0.00011	<0.00010	0.00015	0.00017
Barium	mg/L	0.0001	-	0.00352	0.00351	0.00728	0.00748	0.00322	<0.00010	0.0051	0.00559	0.00792	<0.00010	0.00606	0.00928
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	9.54	10	20.1	19.9	13.8	<0.050	15.1	30.1	32.3	<0.050	31.5	35.6
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000012	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00010	<0.00010
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00073
Iron	mg/L	0.01	0.300	0.022	0.030	0.016	0.15	0.124	<0.010	0.127	0.128	0.241	<0.010	0.184	0.257
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.000050	<0.000050	<0.000050	<0.000050	0.000055	<0.000050	0.000083	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.001	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	0.0014	<0.0010	0.0014	0.0016
Magnesium	mg/L	0.005	-	4.62	4.60	8.6	8.45	5.7	<0.0050	6.26	13.9	14.2	<0.0050	14.9	16.1
Manganese	mg/L	0.0001	Variable ^c	0.00147	0.00173	0.00159	0.00129	0.00425	<0.00050	0.00938	0.00467	0.0222	<0.00050	0.00765	0.0149
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	0.073	0.000058	0.000068	0.000166	0.000215	0.000096	<0.000050	0.00015	0.000116	0.000154	<0.000050	0.000148	0.000189
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.329	0.325	0.558	0.555	0.424	<0.050	0.657	0.677	0.756	<0.050	0.697	0.766
Rubidium	mg/L	0.0002	-	0.00065	0.00062	0.0013	0.00125	0.00085	<0.00020	0.00138	0.00125	0.00158	<0.00020	0.00141	0.00166
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.31	0.33	0.54	0.55	0.39	<0.10	0.51	0.54	0.54	<0.10	0.52	0.45
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010
Sodium	mg/L	0.05	-	0.324	0.334	0.788	0.788	0.528	<0.050	0.799	0.894	1.04	<0.050	1.01	1.13
Strontium	mg/L	0.0002	0.25	0.0055	0.0056	0.0127	0.013	0.0095	<0.0010	0.0164	0.021	0.0264	<0.0010	0.0253	0.0289
Sulphur	mg/L	0.5	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	0.00083	0.00129	0.00032	<0.00030	0.00104	<0.00030	0.00227	0.00044	0.00061	<0.00030	<0.00030	0.00057
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000367	0.000381	0.00211	0.00219	0.000507	<0.000010	0.00105	0.0011	0.00168	<0.000010	0.00112	0.00188
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	0.0032	<0.0030	<0.0030	<0.0030	0.0038	<0.0030	<0.0030	0.0036
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00033

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date											
				2019				2020							
				21-Jun-19	21-Jun-19	10-Aug-19	10-Aug-19	22-Jun-20	22-Jun-20	22-Jun-20	19-Jul-20	19-Jul-20	19-Jul-20	14-Aug-20	14-Aug-20
				US	DS	US	DS	US	US Field Blank	DS	US	DS	DS Travel Blank	US	DS
Dissolved Metals and Non-Metals															
Aluminum	mg/L	0.0010	-	-	-	-	-	0.0077	<0.0050	0.0169	<0.0050	0.0069	<0.0050	0.003	0.0065
Arsenic	mg/L	0.00010	-	-	-	-	-	<0.00010	<0.00010	<0.00010	0.00012	0.00013	<0.00010	<0.00010	0.00011
Barium	mg/L	0.00010	-	-	-	-	-	0.00298	0.00024	0.00462	0.00566	0.00783	<0.00010	0.00642	0.00859
Boron	mg/L	0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.0000050	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.050	-	-	-	-	-	13.6	0.067	14.8	29	31.8	<0.050	30.2	37
Chromium	mg/L	0.0005	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00010	<0.00010
Cobalt	mg/L	0.0001	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0002	-	-	-	-	-	0.00033	<0.00020	0.00051	0.0003	0.00035	<0.00020	0.0004	0.00067
Iron	mg/L	0.01	-	-	-	-	-	0.063	<0.010	0.053	0.075	0.105	<0.010	0.097	0.099
Lead	mg/L	0.00005	Variable ^e	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	0.005	-	-	-	-	-	5.84	0.0131	6.53	13.6	14.3	<0.0050	14.9	15.8
Manganese	mg/L	0.0001	-	-	-	-	-	0.00215	<0.00050	0.00383	0.00376	0.0201	<0.00050	0.00701	0.0122
Mercury	mg/L	0.000005	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	-	-	-	-	-	0.000096	<0.000050	0.00014	0.00012	0.00016	<0.000050	0.000141	0.000195
Nickel	mg/L	0.0005	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	-	-	-	-	0.412	<0.050	0.65	0.674	0.757	<0.050	0.796	0.834
Selenium	mg/L	0.000050	-	-	-	-	-	<0.000050	<0.000050	0.00125	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silver	mg/L	0.00001	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010
Sodium	mg/L	0.05	-	-	-	-	-	0.534	0.056	0.793	0.878	1.03	<0.050	0.942	1.13
Strontium	mg/L	0.0002	0.25	-	-	-	-	0.0091	<0.0010	0.0154	0.0212	0.0272	<0.0010	0.0221	0.0247
Thallium	mg/L	0.000010	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin	mg/L	0.00010	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.000010	-	-	-	-	-	0.000454	<0.000010	0.000916	0.00111	0.00167	<0.000010	0.00107	0.0018
Vanadium	mg/L	0.00050	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.0010	Variable ^e	-	-	-	-	0.0021	0.0022	0.0027	<0.0010	0.0028	<0.0010	<0.0010	0.0029
Miscellaneous (Water)															
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2021						2022			
				15-Jun-21	15-Jun-21	15-Jun-21	16-Aug-21	16-Aug-21	16-Aug-21	20-Jun-22	20-Jun-22	29-Aug-22	29-Aug-22
				DS	US	US Field Duplicate	DS	DS Field Duplicate	US	DS	US	DS	US
In Situ Parameters													
Temperature	°C	-	-	4.5	4.8	-	7.3	-	10.4	12.9	5.7	6.2	6.6
Specific Conductance	µS/cm	-	-	102.7	105.1	-	164.8	-	164.8	141.7	78.5	157.0	165.3
Dissolved Oxygen	mg/L	-	<9.5	12.77	12.66	-	11.95	-	11.99	11.55	11.38	12.99	13.03
Dissolved Oxygen	%	-	-	99.1	99.2	-	100.6	-	101.2	110.5	96.8	105.3	107.0
pH	pH units	-	6.5 - 9.0	7.90	8.09	-	8.29	-	8.27	8.17	7.81	8.28	8.33
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters													
pH	pH units	0.1	6.5 - 9.0	7.91	7.97	6.27	7.81	5.60	7.85	8.10	7.60	8.10	8.14
Conductivity	µS/cm	1	-	108	108	<1.0	173	<1.0	173	145	78	159	158
Turbidity	NTU	0.1	-	1.41	2.07	0.32	0.59	<0.10	0.48	13.90	2.76	<1.0	<1.0
Hardness	mg/L as CaCO₃	-	-	52.6	53.4	<0.50	86.1	<0.50	87.8	74.8	39.2	84.6	86.6
Total Suspended Solids	mg/L	1 - 1.4	Variable ⁸	1.4	5.2	<1.0	2.3	<2.0	<2.0	13.2	7.1	<3.0	<3.0
Total Dissolved Solids	mg/L	18 - 21	-	43	53	<20	92	<10	89	100	48	77	77
Dissolved Anions													
Alkalinity	mg/L as CaCO₃	2.0	-	64.6	67.5	1.2	88.6	<1.0	88.7	69.0	37.8	77.4	75.5
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	1.93	1.93	<0.50	1.83	<0.50	1.79	4.64	2.52	1.68	1.69
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients													
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate	mg/L N	0.02	3.0	0.028	0.027	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	0.020	<0.010	<0.010	<0.010	<0.010	<0.010	0.019	0.019	<0.010	<0.010
Total Phosphorus	mg/L	0.002	0.01	0.0048	0.0061	<0.0030	<0.0030	<0.0030	<0.0030	0.0049	0.0046	0.0059	<0.0030
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050
Organic Compounds													
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	3.88	3.37	1.04	3.04	0.64	3.05	3.64	2.82	1.54	2.20
Total Organic Carbon	mg/L	0.5	-	3.61	3.51	1.06	5.33	3.66	5.13	3.43	3.01	2.01	1.96
Total Kjeldahl Nitrogen	mg/L	-	-	0.220	0.260	0.180	0.130	<0.050	0.110	0.233	0.188	0.067	0.055
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2021						2022			
				15-Jun-21	15-Jun-21	15-Jun-21	16-Aug-21	16-Aug-21	16-Aug-21	20-Jun-22	20-Jun-22	29-Aug-22	29-Aug-22
				DS	US	US Field Duplicate	DS	DS Field Duplicate	US	DS	US	DS	US
Total Metals and Non-Metals													
Aluminum	mg/L	0.003	Variable ^f	0.0599	0.0418	<0.0050	0.0364	<0.0050	0.0236	0.5530	0.0696	0.0052	<0.0050
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	0.00012	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	0.00013	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.0001	-	0.00483	0.00466	<0.00010	0.00683	<0.00010	0.00680	0.01030	0.00264	0.00597	0.00587
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	12.0	12.1	<0.050	19.2	<0.050	19.3	18.6	8.7	18.3	17.1
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000108	0.000013	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00019	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.00050	<0.00050	<0.00050	0.00060	<0.00050	0.00059	0.00146	<0.00050	<0.00050	<0.00050
Iron	mg/L	0.01	0.300	0.060	0.040	<0.010	0.049	<0.010	0.031	0.487	0.101	0.011	0.010
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.000050	0.000137	<0.000050	<0.000050	<0.000050	0.000061	0.000616	0.000077	<0.000050	<0.000050
Lithium	mg/L	0.001	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0028	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	0.005	-	5.88	5.85	<0.0050	9.23	<0.0050	9.29	7.67	4.18	9.68	9.37
Manganese	mg/L	0.0001	Variable ^c	0.00381	0.00259	<0.00050	0.00265	<0.00050	0.00200	0.03270	0.01120	0.00097	0.00095
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	0.073	0.000079	0.000086	<0.000050	0.000156	<0.000050	0.000156	0.000204	0.000068	0.000159	0.000152
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.632	0.636	<0.050	0.612	<0.050	0.601	0.981	0.358	0.544	0.536
Rubidium	mg/L	0.0002	-	0.00106	0.00099	<0.00020	0.00119	<0.00020	0.00113	0.00280	0.00070	0.00107	0.00105
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.60	0.59	<0.10	0.58	<0.10	0.56	1.34	0.39	0.35	0.34
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	0.925	0.915	<0.050	1.17	<0.050	1.20	1.110	0.403	1.13	1.14
Strontium	mg/L	0.0002	0.25	0.0076	0.0076	<0.0010	0.0122	<0.0010	0.0122	0.0233	0.0073	0.0116	0.0112
Sulphur	mg/L	0.5	-	<0.50	<0.50	<0.50	0.64	<0.50	0.63	<0.50	<0.50	0.56	0.55
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000012	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00025	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	0.00213	0.00191	<0.00030	0.00158	<0.00030	0.00086	0.01560	0.00185	<0.00030	<0.00030
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00019	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000715	0.000731	<0.000010	0.00220	<0.000010	0.00221	0.002100	0.000383	0.00236	0.00234
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0044	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00036	<0.00020	<0.00020	<0.00020

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2021						2022			
				15-Jun-21	15-Jun-21	15-Jun-21	16-Aug-21	16-Aug-21	16-Aug-21	20-Jun-22	20-Jun-22	29-Aug-22	29-Aug-22
				DS	US	US Field Duplicate	DS	DS Field Duplicate	US	DS	US	DS	US
Dissolved Metals and Non-Metals													
Aluminum	mg/L	0.0010	-	0.0099	0.0121	<0.0050	<0.0050	<0.0050	<0.0050	0.0265	0.0074	<0.0050	<0.0050
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.00010	-	0.00428	0.00440	<0.00010	0.00688	<0.00010	0.00696	0.00673	0.00245	0.00611	0.00629
Boron	mg/L	0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.050	-	11.7	11.9	<0.050	19.0	<0.050	19.5	18.9	9.36	18.40	18.60
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0002	-	0.00039	0.00040	<0.00020	0.00052	<0.00020	0.00054	0.00048	<0.00020	0.00043	0.00044
Iron	mg/L	0.01	-	0.017	0.018	<0.010	<0.010	<0.010	<0.010	0.046	0.032	<0.010	<0.010
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000078	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	0.005	-	5.67	5.75	<0.0050	9.38	0.0063	9.53	6.68	3.85	9.39	9.75
Manganese	mg/L	0.0001	-	0.00284	0.00303	<0.00050	0.00089	<0.00050	0.00082	0.01580	0.00960	0.00073	0.00082
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	-	0.000083	0.000078	<0.000050	0.000150	<0.000050	0.000150	0.000188	0.000057	0.000157	0.000153
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.583	0.598	<0.050	0.630	<0.050	0.633	0.790	0.350	0.551	0.562
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silver	mg/L	0.00001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	0.888	0.903	<0.050	1.23	<0.050	1.22	0.954	0.397	1.11	1.17
Strontium	mg/L	0.0002	0.25	0.0072	0.0074	<0.0010	0.0121	<0.0010	0.0122	0.0215	0.0075	0.0121	0.0119
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.000010	-	0.000674	0.000691	<0.000010	0.00211	<0.000010	0.00214	0.001920	0.000366	0.00210	0.00223
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.0010	Variable ^e	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0025	0.0017	<0.0010	<0.0010
Miscellaneous (Water)													
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	<0.0020	<0.0020

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	21-Aug-23	21-Aug-23	23-Jul-24	23-Jul-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
In Situ Parameters													
Temperature	°C	-	-	0.2	0.4	6.5	6.7	8.0	8.2	4.2	3.2	7.1	7.1
Specific Conductance	µS/cm	-	-	121.3	121	66.82	66.7	136.9	137.5	79.3	77.8	144.6	144.7
Dissolved Oxygen	mg/L	-	<9.5	13.08	13.11	12.22	12.23	11.34	11.19	12.59	12.98	11.19	11.30
Dissolved Oxygen	%	-	-	92.0	92.8	101.1	101.4	98.2	97.4	97.0	97.0	92.5	93.3
pH	pH units	-	6.5 - 9.0	7.88	7.88	8.04	7.84	8.24	8.21	7.65	7.61	7.39	7.98
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m ³ /s	-	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters													
pH	pH units	0.1	6.5 - 9.0	7.93	7.91	7.91	7.76	8.16	8.15	7.47	7.35	8.06	8.07
Conductivity	µS/cm	1	-	123	128	69.5	69.3	141	141	99.5	82.9	159	157
Turbidity	NTU	0.1	-	1.14	0.88	3.41	3.47	0.55	0.5	1.25	1.38	0.30	0.29
Hardness	mg/L as CaCO ₃	-	-	64.1	65.8	34.2	34.5	71.7	73.9	44.3	43.0	82.1	82.0
Total Suspended Solids	mg/L	1 - 1.4	Variable ⁸	7.8	3.2	3.8	2.3	1.2	1.2	2.5	1.4	< 1.0	< 1.0
Total Dissolved Solids	mg/L	18 - 21	-	59	65	38	43	45	63	50	58	77	78
Dissolved Anions													
Alkalinity	mg/L as CaCO ₃	2.0	-	81.1	87.1	54.5	34.7	71.2	71.6	48.3	40.6	78.4	78.9
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	2.2	3.37	0.55	0.56	1.25	1.26	0.98	1.03	1.02	0.94
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients													
NH ₃ +NH ₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Nitrate	mg/L N	0.02	3.0	0.031	0.025	<0.020	<0.020	<0.020	<0.020	0.023	< 0.020	< 0.020	< 0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	0.0059	0.0063	<0.0050	<0.0050	0.0116	0.0054	< 0.0050	0.0086	< 0.0050	< 0.0050
Total Phosphorus	mg/L	0.002	0.01	0.0056	0.0066	0.0051	0.0051	0.0029	0.0031	0.0058	0.0062	0.0023	0.002
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds													
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	3.27	3.47	1.08	1.11	1.7	1.58	24.2	17.2	1.97	3.01
Total Organic Carbon	mg/L	0.5	-	3.19	3.29	1.54	1.56	1.82	2.08	2.70	2.74	1.81	2.06
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	21-Aug-23	21-Aug-23	23-Jul-24	23-Jul-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
Total Metals and Non-Metals													
Aluminum	mg/L	0.003	Variable ^f	0.0342	0.0424	0.0564	0.0617	0.021	0.0148	0.0379	0.0607	0.0058	0.0076
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Barium	mg/L	0.0001	-	0.00499	0.00539	0.00314	0.00326	0.00617	0.00578	0.00365	0.00401	0.00629	0.00641
Beryllium	mg/L	0.00002	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Calcium	mg/L	0.05	-	13.4	14	7.68	7.66	15.2	15.8	9.85	10.0	17.5	17.9
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	0.000010	<0.000010	<0.000010	< 0.000010	0.000012	< 0.000010	< 0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	0.00113	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.00050	0.00054	<0.00050	0.00243	0.00059	0.00053	< 0.00050	0.00069	0.00053	< 0.00050
Iron	mg/L	0.01	0.300	0.063	0.076	0.060	0.062	0.033	0.024	0.042	0.070	0.010	< 0.010
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.000050	0.000055	0.000074	0.000137	<0.000050	<0.000050	< 0.000050	0.000065	< 0.000050	< 0.000050
Lithium	mg/L	0.001	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Magnesium	mg/L	0.005	-	7.54	7.34	3.66	3.68	7.78	7.83	5.00	5.16	8.87	9.11
Manganese	mg/L	0.0001	Variable ^c	0.0127	0.0136	0.00261	0.00302	0.00223	0.00201	0.00341	0.00433	0.00090	0.00070
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Molybdenum	mg/L	0.00005	0.073	0.000081	0.000079	0.000054	<0.000050	0.000131	0.000139	0.000071	0.000086	0.000132	0.000148
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	mg/L	0.05	-	0.626	0.611	0.280	0.285	0.486	0.481	0.503	0.523	0.550	0.569
Rubidium	mg/L	0.0002	-	0.00105	0.00109	0.00064	0.00068	0.00107	0.00104	0.00073	0.00092	0.00113	0.00110
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Silicon	mg/L	0.1	-	0.68	0.72	0.39	0.39	0.55	0.54	0.48	0.50	0.46	0.47
Silver	mg/L	0.00001	0.25	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Sodium	mg/L	0.05	-	0.927	0.910	0.331	0.333	0.853	0.839	0.512	0.539	0.812	0.819
Strontium	mg/L	0.0002	0.25	0.00810	0.00798	0.00450	0.00462	0.00977	0.00986	0.00557	0.0060	0.0110	0.0111
Sulphur	mg/L	0.5	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.50	< 0.50	< 0.50	< 0.50
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Titanium	mg/L	0.0003	-	0.00122	0.00167	0.00196	0.00217	0.00101	0.00047	0.00149	0.00225	< 0.00030	< 0.00030
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Uranium	mg/L	0.00001	0.015	0.000957	0.000962	0.000283	0.000276	0.00152	0.00154	0.000377	0.000385	0.00185	0.00189
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	< 0.0030	0.0044	< 0.0030	< 0.0030
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	0.00055	<0.00020	<0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020

Table 2.1: Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-025 (CV128)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	21-Aug-23	21-Aug-23	23-Jul-24	23-Jul-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
Dissolved Metals and Non-Metals													
Aluminum	mg/L	0.0010	-	0.0052	0.0160	0.0069	0.0050	0.0034	0.0030	0.0312	0.0319	0.0030	0.0024
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Barium	mg/L	0.00010	-	0.00497	0.00483	0.00294	0.00286	0.00572	0.00571	0.00378	0.00378	0.00601	0.00608
Boron	mg/L	0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Calcium	mg/L	0.050	-	13.8	14.3	7.69	7.78	15.3	16.0	9.72	9.08	17.7	17.6
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Copper	mg/L	0.0002	-	0.00038	0.00040	0.00032	0.00037	0.00044	0.00047	0.00040	0.00045	0.00072	0.00051
Iron	mg/L	0.01	-	0.020	0.021	<0.010	<0.010	<0.010	<0.010	0.037	0.039	< 0.010	< 0.010
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Magnesium	mg/L	0.005	-	7.14	7.24	3.60	3.62	7.97	8.17	4.87	4.95	9.21	9.25
Manganese	mg/L	0.0001	-	0.0101	0.0110	0.00091	0.00094	0.00074	0.00075	0.00331	0.00335	0.00055	0.00073
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Molybdenum	mg/L	0.00005	-	0.000071	0.000089	0.000053	0.000055	0.000138	0.000131	0.000067	0.000055	0.000129	0.000152
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	mg/L	0.05	-	0.625	0.643	0.301	0.309	0.466	0.466	0.488	0.492	0.512	0.529
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Silver	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Sodium	mg/L	0.05	-	0.934	0.939	0.348	0.354	0.846	0.848	0.479	0.477	0.823	0.830
Strontium	mg/L	0.0002	0.25	0.00786	0.00839	0.00476	0.00481	0.00974	0.00986	0.0054	0.0054	0.0106	0.0106
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Uranium	mg/L	0.000010	-	0.000882	0.000906	0.000261	0.000259	0.00145	0.00151	0.000338	0.000348	0.00171	0.00165
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Zinc	mg/L	0.0010	Variable ^e	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	0.0048	0.0491	< 0.0010	0.0018
Miscellaneous (Water)													
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2005			2006			2015			
				13-Jun-05	06-Aug-05	09-Sep-05	14-Jun-06	03-Aug-06	08-Sep-06	03-Jul-15	03-Jul-15	12-Aug-15	12-Aug-15
										US	DS	US	DS
In Situ Parameters													
Temperature	°C	-	-	0.11	9.36	4.13	0.04	8.31	2.74	-	-	9.3	8.2
Specific Conductance	µS/cm	-	-	0.104	0.220	0.308	0.112	0.254	0.305	0.112	0.111	0.337	0.338
Dissolved Oxygen	mg/L	-	<9.5	13.69	10.95	12.74	13.80	12.02	13.37	-	-	-	-
Dissolved Oxygen	%	-	-	-	-	-	-	-	-	-	-	103.5	101.7
pH	pH units	-	6.5 - 9.0	7.54	8.31	8.07	8.17	8.36	8.55	8.27	8.28	8.55	8.53
Wetted Width	m	-	-	-	-	-	ice	11	12	6	6	2	2
Average Depth	m	-	-	-	-	-	0.1	0.15	0.3	0.1	0.1	0.15	0.15
Flow Rate	m³/s	-	-	-	-	-	-	0.82	1.88	-	-	-	-
Physical Parameters													
pH	pH units	0.1	6.5 - 9.0	-	-	-	7.68	8.14	8.13	8.13	8.13	8.37	8.36
Conductivity	µS/cm	1	-	105	235	296	122	259	315	-	-	-	-
Turbidity	NTU	0.1	-	0.84	0.23	<0.10	0.9	0.2	-	0.32	0.48	1.07	0.12
Hardness	mg/L as CaCO₃	-	-	54.2	128	177	62	144	162	81	80	157	156
Total Suspended Solids	mg/L	1	Variable ⁸	-	-	-	-	-	-	<2.0	2.0	<2.0	<2.0
Total Dissolved Solids	mg/L	19 - 20	-	57	123	170	79	168	205	93	77	168	157
Dissolved Anions													
Alkalinity	mg/L as CaCO₃	2.0	-	52	134	156	61	141	163	80	81	161	160
Bromide	mg/L	-	-	<0.3	<0.3	<0.3	<0.05	<0.05	<0.05	-	-	-	-
Chloride	mg/L	0.5	120	1.1	0.6	1.9	<1	1	3	1.2	1.22	4.14	4.15
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	0.6	1.1	2.5	2.0	2.0	6.0	1.1	1.2	4.80	5.12
Nutrients													
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	0.3	0.2	0.6	0.09	0.04	<0.02	<0.15	<0.15	0.23	0.17
Nitrite	mg/L N	0.01	0.060	<0.06	<0.06	<0.06	<0.005	<0.005	0.017	-	-	-	-
Nitrate	mg/L N	0.02	3.0	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<0.020	<0.020	0.031	0.037
Nitrate + Nitrite	mg/L N	-	-	<0.06	<0.06	<0.06	<0.10	<0.10	<0.10	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	-	-	-	-	-	-	-	-	-	-
Total Phosphorus	mg/L	0.002	0.01	<0.02	<0.02	<0.10	<0.01	<0.01	<0.01	<0.0030	<0.0030	<0.0030	0.0034
Dissolved Phosphorus	mg/L	-	-	<0.02	<0.02	<0.10	-	-	-	-	-	-	-
Organic Compounds													
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	-	-	-	-	-	-	1.8	1.7	2.7	2.8
Total Organic Carbon	mg/L	0.5	-	-	-	-	-	-	-	1.8	1.8	2.7	2.8
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	<0.15	0.23	0.23	0.17
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2005			2006			2015			
				13-Jun-05	06-Aug-05	09-Sep-05	14-Jun-06	03-Aug-06	08-Sep-06	03-Jul-15	03-Jul-15	12-Aug-15	12-Aug-15
										US	DS	US	DS
Total Metals and Non-Metals													
Aluminum	mg/L	0.003	Variable ^f	0.026	0.005	<0.004	0.015	<0.005	<0.005	0.012	0.014	<0.010	<0.010
Antimony	mg/L	0.0001	-	<0.0004	<0.0004	<0.0004	-	-	-	-	-	-	-
Arsenic	mg/L	0.0001	0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.0010	<0.0010	0.00010	0.00011
Barium	mg/L	0.0001	-	0.002	0.004	0.005	<0.01	<0.01	<0.01	-	-	-	-
Beryllium	mg/L	0.00002	-	<0.005	<0.005	<0.005	-	-	-	-	-	-	-
Bismuth	mg/L	0.00005	-	<0.0003	<0.0003	<0.0003	-	-	-	-	-	-	-
Boron	mg/L	0.01	1.5	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
Cadmium	mg/L	0.000005	Variable ^c	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.000090	<0.000090	<0.000010	<0.000010
Calcium	mg/L	0.05	-	13.0	29.3	39.8	16	34	37	17.6	18	35.9	34.9
Cesium	mg/L	0.00001	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/L	0.0005	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-
Cobalt	mg/L	0.0001	Variable ^c	<0.0003	<0.0003	<0.0003	<0.0002	<0.0002	<0.0002	-	-	-	-
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0008	<0.0008	<0.0008	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
Iron	mg/L	0.01	0.300	<0.05	<0.02	<0.02	<0.03	<0.03	<0.03	<0.050	<0.050	<0.050	<0.050
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.00050	<0.00050	<0.00010	<0.00010
Lithium	mg/L	0.001	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.005	-	5.29	13.2	18.7	6	15	17	8.01	7.96	19	18.4
Manganese	mg/L	0.0001	Variable ^c	0.0079	<0.0007	<0.0007	<0.01	<0.01	<0.01	<0.0010	<0.0010	<0.00050	<0.00050
Mercury	mg/L	0.000005	0.000026	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	0.073	<0.0003	<0.0003	<0.0003	<0.005	<0.005	<0.005	<0.00050	<0.00050	<0.00050	<0.00050
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.53	0.45	0.54	0.52	0.34	0.52	<1.0	<1.0	0.614	0.626
Rubidium	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.00005	0.001	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.00040	<0.00040	<0.000050	<0.000050
Silicon	mg/L	0.1	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.00001	0.25	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-
Sodium	mg/L	0.05	-	0.39	0.67	1.15	0.37	0.67	1.61	0.76	0.75	2.64	2.55
Strontium	mg/L	0.0002	0.25	0.0068	0.0140	0.0198	0.010	0.018	0.022	-	-	-	-
Sulfur	mg/L	0.5	-	-	-	-	-	-	-	-	-	-	-
Tellurium	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-
Thallium	mg/L	0.00001	0.0008	<0.0002	<0.0002	<0.0002	-	-	-	<0.00030	<0.00030	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	0.0001	-	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01	-	-	-	-
Titanium	mg/L	0.0003	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
Tungsten	mg/L	0.0001	-	-	-	-				-	-	-	-
Uranium	mg/L	0.00001	0.015	-	-	-				<0.0010	<0.0010	0.000982	0.001040
Vanadium	mg/L	0.0005	0.12	<0.0009	<0.0009	<0.0009	<0.001	<0.001	0.001	-	-	-	-
Zinc	mg/L	0.003	0.03	0.002	<0.001	<0.001	<0.01	<0.01	<0.01	<0.0030	0.0044	<0.0030	0.0193
Zirconium	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2005			2006			2015			
				13-Jun-05	06-Aug-05	09-Sep-05	14-Jun-06	03-Aug-06	08-Sep-06	03-Jul-15	03-Jul-15	12-Aug-15	12-Aug-15
										US	DS	US	DS
Dissolved Metals and Non-Metals													
Aluminum	mg/L	0.0010	-	0.004	<0.004	<0.004	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic	mg/L	0.00010	-	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.00010	<0.00010	0.00011	0.00010
Barium	mg/L	0.00010	-	0.002	0.004	0.005	<0.01	<0.01	<0.01	-	-	-	-
Boron	mg/L	0.010	-	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	-	-	-	-
Cadmium	mg/L	0.0000050	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010	<0.000010	<0.000010
Calcium	mg/L	0.050	-	12.3	29.7	37.4	15	33	37	18.4	18.8	34.7	34.7
Chromium	mg/L	0.0005	-	<0.001	0.002	0.002	<0.001	<0.001	<0.001	-	-	-	-
Cobalt	mg/L	0.0001	-	<0.0003	<0.0003	<0.0003	<0.0002	<0.0002	<0.0002	-	-	-	-
Copper	mg/L	0.0002	-	<0.0008	<0.0008	<0.0008	<0.001	<0.001	<0.001	0.00030	0.00031	0.00050	0.00055
Iron	mg/L	0.01	-	<0.05	<0.02	<0.02	<0.03	<0.03	<0.03	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.00005	Variable ^e	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	0.005	-	5.67	13.3	17.3	6	15	17	8.59	7.92	17.1	17
Manganese	mg/L	0.0001	-	0.0060	<0.0007	<0.0007	<0.01	<0.01	<0.01	<0.00050	<0.00050	<0.00050	<0.00050
Mercury	mg/L	0.000005	-	-	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	-	<0.0003	<0.0003	<0.0003	<0.005	<0.005	<0.005	<0.000010	<0.000010	0.000107	0.000112
Nickel	mg/L	0.0005	-	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.000050	0.000059	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.52	0.44	0.52	0.52	0.34	0.53	<0.00050	<0.00050	0.616	0.631
Selenium	mg/L	0.000050	-	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	0.386	0.360	<0.000050	<0.000050
Silver	mg/L	0.00001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.000050	<0.000050	-	-
Sodium	mg/L	0.05	-	0.42	0.67	1.10	0.34	0.68	1.61	0.76	0.73	2.41	2.39
Strontium	mg/L	0.0002	0.25	0.0070	0.0147	0.0188	0.009	0.019	0.023	-	-	-	-
Thallium	mg/L	0.000010	-	<0.0002	<0.0002	<0.0002	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Tin	mg/L	0.00010	-	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01	-	-	-	-
Uranium	mg/L	0.000010	-	-	-	-	-	-	-	0.00023	0.000251	0.000911	0.000966
Vanadium	mg/L	0.00050	-	<0.0009	0.0046	0.0046	<0.001	<0.001	0.001	-	-	-	-
Zinc	mg/L	0.0010	Variable ^e	0.009	0.002	0.002	<0.01	<0.01	<0.01	0.0017	0.0044	<0.0010	0.0182
Miscellaneous (Water)													
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2016				2017		2018			
				30-Jun-16	30-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17	03-Jul-18	03-Jul-18	02-Sep-18	02-Sep-18
				DS	US	DS	US	US	DS	US	DS	DS	
In Situ Parameters													
Temperature	°C	-	-	10.83	12.19	9	9.1	1.6	2.2	6.1	6.2	5.10	4.50
Specific Conductance	µS/cm	-	-	-	-	0.347	0.353	0.136	0.1489	0.1536	0.1518	0.2694	0.2699
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	97.4	97	102.5	107.5	101.6	103.3	98.10	98.20	99.30	98.30
pH	pH units	-	6.5 - 9.0	7.97	7.93	8.24	8.3	7.77	7.81	8.12	8.09	8.38	8.33
Wetted Width	m	-	-	-	-	-	-	2	2	~15	~20	7.80	4.60
Average Depth	m	-	-	-	-	-	-	0.3	2	-	-	0.09	0.12
Flow Rate	m³/s	-	-	-	-	-	-	0.396	3.4	-	-	0.13	0.11
Physical Parameters													
pH	pH units	0.1	6.5 - 9.0	8.09	8.08	8.42	8.46	7.8	7.8	8.11	8.10	8.43	8.40
Conductivity	µS/cm	1	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	0.1	-	0.42	0.47	0.13	0.16	1.93	2.43	0.92	0.69	0.12	0.11
Hardness	mg/L as CaCO₃	-	-	59	60	185	187	36	34	82	81	166	166
Total Suspended Solids	mg/L	1	Variable ⁸	<2.0	<2.0	<2.0	<2.0	11.3	13.6	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids	mg/L	19 - 20	-	70	65	176	178	36	38	99	95	160	165
Dissolved Anions													
Alkalinity	mg/L as CaCO₃	2.0	-	60	61	176	179	31	30	75	77	154	160
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	1.16	1.06	8.54	8.68	<0.50	<0.50	1.18	1.20	4.05	4.14
Fluoride	mg/L	-	-	0.021	<0.020	0.03	0.029	<0.020	<0.020	0.021	0.021	0.042	0.042
Sulfate	mg/L	-	-	1.03	0.84	7.13	6.77	<0.30	<0.30	0.87	0.87	3.72	3.81
Nutrients													
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	<0.15	<0.15	<0.15	0.16	<0.15	<0.15	-	-	-	-
Nitrite	mg/L N	0.01	0.060	-	-	-	-	-	-	-	-	-	-
Nitrate	mg/L N	0.02	3.0	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.020	<0.020	<0.020	0.048	<0.020	<0.020	<0.020	<0.020	-	-
Total Phosphorus	mg/L	0.002	0.01	0.0051	0.0037	0.0041	0.0137	0.0114	0.014	0.0040	<0.0030	<0.0030	<0.0030
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds													
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	1.3	1.3	2.5	2.5	2.13	2.16	2.45	2.33	2.81	2.90
Total Organic Carbon	mg/L	0.5	-	1.4	1.5	2.6	2.8	2.43	1.27	2.66	2.56	3.39	2.44
Total Kjeldahl Nitrogen	mg/L	-	-	<0.15	<0.15	<0.15	0.16	0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2016				2017		2018			
				30-Jun-16	30-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17	03-Jul-18	03-Jul-18	02-Sep-18	02-Sep-18
				DS	US	DS	US	US	DS	US	DS	US	DS
Total Metals and Non-Metals													
Aluminum	mg/L	0.003	Variable ^f	0.021	0.015	<0.010	<0.010	0.111	0.108	0.0086	0.0208	<0.0050	<0.0050
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	0.00014	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	<0.00010
Barium	mg/L	0.0001	-	0.00241	0.00253	0.0066	0.0068	0.00186	0.00175	0.00271	0.00278	0.00555	0.00565
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	13.7	13.2	41.3	41.2	8.06	7.67	19.10	18.9	37.80	38.50
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	0.000014	0.000013	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Iron	mg/L	0.01	0.300	<0.050	<0.050	<0.050	<0.050	0.124	0.111	<0.010	0.014	<0.010	<0.010
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.00010	<0.00010	<0.00010	<0.00010	0.000128	0.000144	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.001	-	<0.0010	<0.0010	0.0021	0.0021	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	0.0011
Magnesium	mg/L	0.005	-	6.04	6.63	19.9	20.5	3.76	3.59	8.33	8.14	17.30	16.90
Manganese	mg/L	0.0001	Variable ^c	0.00056	<0.00050	<0.00050	<0.00050	0.00406	0.00406	<0.00050	<0.00050	<0.00050	<0.00050
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	0.073	<0.000050	<0.000050	0.000131	0.000141	<0.000050	<0.000050	<0.000050	<0.000050	0.0001	0.0001
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.339	0.389	0.69	0.686	0.337	0.325	0.334	0.332	0.544	0.54
Rubidium	mg/L	0.0002	-	0.00033	0.00036	0.00057	0.00061	0.0005	0.00048	0.00	0.00033	0.00045	0.00045
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.501	0.471	0.709	0.945	0.4	0.4	0.53	0.52	0.81	0.83
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	0.66	0.71	4.03	4.02	<0.50	<0.50	0.63	0.63	2.29	2.23
Strontium	mg/L	0.0002	0.25	0.0074	0.0072	0.0242	0.0242	0.0041	0.0038	0.0108	0.0105	0.0225	0.02
Sulfur	mg/L	0.5	-	0.59	<0.50	2.79	3.04	<0.50	<0.50	<0.50	0.52	1.77	1.63
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	0.0009	0.0007	<0.00030	0.00033	0.00499	0.00417	<0.00030	0.000630	<0.00030	<0.00030
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000173	0.000137	0.00122	0.00117	0.000046	0.000064	0.000291	0.000318	0.001010	0.000998
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	0.0045	<0.0030	0.007	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2016				2017		2018			
				30-Jun-16	30-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17	03-Jul-18	03-Jul-18	02-Sep-18	02-Sep-18
				DS	US	DS	US	US	DS	US	DS	US	DS
Dissolved Metals and Non-Metals													
Aluminum	mg/L	0.0010	-	-	-	-	-	-	-	-	-	-	-
Arsenic	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-
Barium	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/L	0.010	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/L	0.0000050	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	0.050	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-
Iron	mg/L	0.01	-	-	-	-	-	-	-	-	-	-	-
Lead	mg/L	0.00005	Variable ^e	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.005	-	-	-	-	-	-	-	-	-	-	-
Manganese	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/L	0.000005	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	mg/L	0.00005	-	-	-	-	-	-	-	-	-	-	-
Nickel	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-	-
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.000050	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.00001	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-
Strontium	mg/L	0.0002	0.25	-	-	-	-	-	-	-	-	-	-
Thallium	mg/L	0.000010	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-
Uranium	mg/L	0.000010	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/L	0.00050	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/L	0.0010	Variable ^e	-	-	-	-	-	-	-	-	-	-
Miscellaneous (Water)													
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2019				2020						
				21-Jun-19	21-Jun-19	11-Aug-19	11-Aug-19	22-Jun-20	22-Jun-20	20-Jul-20	20-Jul-20	14-Aug-20	14-Aug-20	14-Aug-20
				US	DS	US	DS	US	DS	US	DS	US	DS	DS Travel Blank
In Situ Parameters														
Temperature	°C	-	-	7.00	7.10	12.4	11.9	1.60	1.7	13.80	13.50	9.30	9.00	9.00
Specific Conductance	µS/cm	-	-	0.1631	0.1634	0.3530	0.3534	0.0672	0.0681	0.2853	0.2816	0.3798	0.3798	0.3798
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	13.83	13.8	10.23	10.49	98.80	100.90	100.90
Dissolved Oxygen	%	-	-	98.90	98.70	100.5	98.6	98.80	99.1	98.50	100.60	11.37	11.65	11.65
pH	pH units	-	6.5 - 9.0	8.26	8.28	8.37	8.37	7.69	7.81	8.35	8.45	8.52	8.50	8.50
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters														
pH	pH units	0.1	6.5 - 9.0	8.24	8.21	8.48	8.46	7.68	7.65	8.41	8.42	8.55	-	6.32
Conductivity	µS/cm	1	-	-	-	-	-	70.00	70.70	293.00	293.00	389.00	390.00	<2.0
Turbidity	NTU	0.1	-	0.20	0.19	0.15	0.12	0.65	0.69	0.13	<0.10	<0.10	<0.10	<0.10
Hardness	mg/L as CaCO₃	-	-	100	98	173	179	37.3	37.7	150	150	208	203	<0.50
Total Suspended Solids	mg/L	1	Variable ⁸	<2.0	<2.0	<2.0	<2.0	<2.0	2.00	<2.0	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids	mg/L	19 - 20	-	102	100	196	230	32	44	153	158	216	221	18
Dissolved Anions														
Alkalinity	mg/L as CaCO₃	2.0	-	95	96	183	184	35	35	145	145	185	183	<1.0
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	1.32	1.39	7.96	8.05	0.61	0.62	6.84	7.10	13.80	13.80	<0.50
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients														
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0010	<0.0010	<0.0010
Nitrate	mg/L N	0.02	3.0	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.0050	0.01	<0.0050
Nitrate + Nitrite	mg/L N	-	-	<0.022	<0.022	<0.022	<0.022	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.0050	<0.0050
Total Phosphorus	mg/L	0.002	0.01	<0.0030	<0.0030	<0.0030	<0.0030	0.01	0.01	<0.0030	<0.0030	<0.0020	0.0020	<0.0020
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds														
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	2.80	2.60	2.69	2.75	2.80	2.92	3.19	3.41	2.97	2.98	<0.50
Total Organic Carbon	mg/L	0.5	-	3.23	3.47	3.11	3.15	3.14	3.17	3.62	3.71	2.92	2.93	<0.50
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2019				2020						
				21-Jun-19	21-Jun-19	11-Aug-19	11-Aug-19	22-Jun-20	22-Jun-20	20-Jul-20	20-Jul-20	14-Aug-20	14-Aug-20	14-Aug-20
				US	DS	US	DS	US	DS	US	DS	US	DS	DS Travel Blank
Total Metals and Non-Metals														
Aluminum	mg/L	0.003	Variable ^f	0.0148	0.01	<0.0050	0.0071	0.0472	0.0419	<0.0050	0.00550	<0.0030	<0.0030	<0.0030
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	0.00015	0.00015	<0.00010	<0.00010	<0.00010	0.000110	0.00017	0.00015	<0.00010
Barium	mg/L	0.0001	-	0.00347	0.00335	0.00753	0.00765	0.00330	0.00162	0.00616	0.00601	0.00712	0.00701	<0.00010
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.00001520	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	22.40	21.90	38.2	40.8	8.77	9.03	34.10	34.50	43.80	44.00	<0.050
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00	<0.00010	<0.00010
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0010	<0.0010	<0.0010	<0.0010	0.003740	<0.00050	0.000580	0.000590	0.000560	0.000560	<0.00050
Iron	mg/L	0.01	0.300	<0.010	<0.010	<0.010	<0.010	0.0490	0.0430	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.000050	<0.000050	<0.000050	<0.000050	0.0001220	0.0000570	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.001	-	0.0010	0.0011	0.0017	0.0019	<0.0010	<0.0010	0.0019	0.0018	0.0024	0.0024	<0.0010
Magnesium	mg/L	0.005	-	9.50	9.85	18.3	18.6	4.03	3.93	16.10	16.20	22.30	22.00	<0.0050
Manganese	mg/L	0.0001	Variable ^c	<0.00050	<0.00050	<0.00050	<0.00050	0.002820	0.002310	<0.00050	<0.00050	0.000110	0.000140	<0.00010
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	0.073	<0.000050	<0.000050	0.000132	0.000133	<0.000050	<0.000050	0.0001	0.0001	0.0001	0.0001	<0.000050
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.410	0.40	0.671	0.675	0.298	0.242	0.659	0.648	0.721	0.686	<0.050
Rubidium	mg/L	0.0002	-	0.00034	0.00039	0.00067	0.00067	0.00034	0.00028	0.00058	0.00063	0.00056	0.00062	<0.00020
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.60	0.60	0.74	0.75	0.29	0.30	0.85	0.81	1.00	0.96	<0.10
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010
Sodium	mg/L	0.05	-	0.839	0.83	3.36	3.38	0.438	0.321	3.160	3.27	5.680	5.580	<0.050
Strontium	mg/L	0.0002	0.25	0.0118	0.01	0.0269	0.0269	0.0047	0.0046	0.0215	0.02	0.0296	0.0277	<0.00020
Sulfur	mg/L	0.5	-	0.63	0.58	1.78	1.97	<0.50	<0.50	1.94	1.82	3.55	3.83	<0.50
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	0.00	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	<0.00030	0.000490	<0.00030	<0.00030	0.00188	0.00172	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000381	0.000391	0.0012	0.00124	0.000065	0.000070	0.000803	0.000842	0.001390	0.001450	<0.000010
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	0.0037	<0.0030	<0.0030	<0.0030	0.00910	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	0.00024	0.00025	<0.00020	<0.00020	<0.00020	<0.00020	0.000220	0.000210	<0.00020

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2019				2020						
				21-Jun-19	21-Jun-19	11-Aug-19	11-Aug-19	22-Jun-20	22-Jun-20	20-Jul-20	20-Jul-20	14-Aug-20	14-Aug-20	14-Aug-20
				US	DS	US	DS	US	DS	US	DS	US	DS	DS Travel Blank
Dissolved Metals and Non-Metals														
Aluminum	mg/L	0.0010	-	-	-	-	-	0.008	0.008	<0.0050	<0.0050	<0.0010	<0.0010	<0.0010
Arsenic	mg/L	0.00010	-	-	-	-	-	<0.00010	<0.00010	0.000	0.000	0.000	<0.00010	<0.00010
Barium	mg/L	0.00010	-	-	-	-	-	0.001	0.001	0.006	0.006	0.007	0.007	<0.00010
Boron	mg/L	0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.0000050	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.050	-	-	-	-	-	8.410	8.630	33.400	33.400	46.600	44.500	0.068
Chromium	mg/L	0.0005	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010
Cobalt	mg/L	0.0001	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0002	-	-	-	-	-	<0.00020	0.000	0.001	0.001	0.001	0.001	<0.00020
Iron	mg/L	0.01	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.00005	Variable ^e	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	0.005	-	-	-	-	-	3.960	3.920	16.100	16.200	22.300	22.400	<0.0050
Manganese	mg/L	0.0001	-	-	-	-	-	0.001	0.001	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010
Mercury	mg/L	0.000005	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	-	-	-	-	-	<0.000050	<0.000050	0.000	0.000	0.000	0.000	<0.000050
Nickel	mg/L	0.0005	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	-	-	-	-	0.234	0.240	0.704	0.682	0.789	0.771	<0.050
Selenium	mg/L	0.000050	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silver	mg/L	0.00001	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010
Sodium	mg/L	0.05	-	-	-	-	-	0.342	0.361	3.250	3.260	5.660	5.510	<0.050
Strontium	mg/L	0.0002	0.25	-	-	-	-	0.004	0.005	0.022	0.022	0.026	0.026	<0.00020
Thallium	mg/L	0.000010	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin	mg/L	0.00010	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.000010	-	-	-	-	-	0.000	0.000	0.001	0.001	0.001	0.001	<0.000010
Vanadium	mg/L	0.00050	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.0010	Variable ^e	-	-	-	-	<0.0010	0.003	<0.0010	0.001	<0.0010	<0.0010	<0.0010
Miscellaneous (Water)														
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date								
				2021				2022				
				14-Jun-21	14-Jun-21	16-Aug-21	16-Aug-21	20-Jun-22	20-Jun-22	20-Jun-22	29-Aug-22	29-Aug-22
				DS	US	DS	US	DS	US	DS Field Duplicate	DS	US
In Situ Parameters												
Temperature	°C	-	-	0.5	0.4	7.5	7.6	2.3	1.1	-	7.0	6.7
Specific Conductance	µS/cm	-	-	57.2	57.6	303	302	92.4	88.3	-	358.4	357.7
Dissolved Oxygen	mg/L	-	<9.5	14.36	14.27	11.82	11.77	13.59	13.94	-	12.69	12.82
Dissolved Oxygen	%	-	-	100.2	99.2	100.7	100.5	99.2	98.4	-	105.5	106.1
pH	pH units	-	6.5 - 9.0	7.69	7.72	8.45	8.55	7.86	7.77	-	8.33	8.44
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters												
pH	pH units	0.1	6.5 - 9.0	7.68	7.69	8.30	8.33	7.82	7.83	7.01	8.46	8.47
Conductivity	µS/cm	1	-	67.2	66.9	318	317	94.2	90.0	95.4	362	360
Turbidity	NTU	0.1	-	4.20	5.42	0.10	0.11	4.06	5.70	4.55	<1.0	<1.0
Hardness	mg/L as CaCO₃	-	-	31.4	30.9	169	168	48.5	45.6	48	199	196
Total Suspended Solids	mg/L	1	Variable ⁶	20.7	25.3	<1.0	1.0	11.4	10.8	7.5	<3.0	<3.0
Total Dissolved Solids	mg/L	19 - 20	-	45	28	166	160	61	68	87	190	184
Dissolved Anions												
Alkalinity	mg/L as CaCO₃	2.0	-	44.7	43.6	165	165	49.3	45.6	49.2	170.0	170.0
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	1.03	1.06	4.67	4.59	1.07	1.08	1.08	9.87	9.65
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-
Nutrients												
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate	mg/L N	0.02	3.0	<0.020	0.022	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.010	<0.010	<0.10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Total Phosphorus	mg/L	0.002	0.01	0.0309	0.0209	<0.0030	<0.0030	0.0130	0.0098	0.0128	0.0094	<0.0030
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050
Organic Compounds												
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	3.51	3.86	5.96	4.30	3.40	4.17	3.71	3.73	2.76
Total Organic Carbon	mg/L	0.5	-	3.77	3.81	6.18	6.25	3.56	3.73	3.67	3.06	2.99
Total Kjeldahl Nitrogen	mg/L	-	-	0.230	0.250	0.160	0.170	0.282	0.247	0.227	0.144	0.118
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date								
				2021				2022				
				14-Jun-21	14-Jun-21	16-Aug-21	16-Aug-21	20-Jun-22	20-Jun-22	20-Jun-22	29-Aug-22	29-Aug-22
				DS	US	DS	US	DS	US	DS Field Duplicate	DS	US
Total Metals and Non-Metals												
Aluminum	mg/L	0.003	Variable ^f	0.120	0.122	<0.0050	0.0053	0.145	0.105	0.131	<0.0050	<0.0050
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	0.00011	<0.00010	0.00010	0.00012	<0.00010	<0.00010	<0.00010	0.00011	0.00011
Barium	mg/L	0.0001	-	0.00197	0.00189	0.00583	0.00586	0.00263	0.00241	0.00259	0.00646	0.00641
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	8.09	7.96	36.9	36.6	12.1	10.7	12.7	40.5	41.3
Cesium	mg/L	0.00001	-	0.000014	0.000014	<0.000010	<0.000010	0.000020	0.000013	0.000019	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	0.0001	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00052	0.00052
Iron	mg/L	0.01	0.300	0.121	0.120	<0.010	<0.010	0.186	0.156	0.167	<0.010	<0.010
Lead	mg/L	0.00005	0.001 - 0.007 ^c	0.000134	0.000134	<0.000050	<0.000050	0.000149	0.000116	0.000129	<0.000050	<0.000050
Lithium	mg/L	0.001	-	<0.0010	<0.0010	0.0016	0.0016	<0.0010	<0.0010	0.0011	0.002	0.0021
Magnesium	mg/L	0.005	-	3.56	3.55	17.6	18.2	5.51	5.37	5.47	22.80	24.00
Manganese	mg/L	0.0001	Variable ^c	0.00526	0.00503	<0.00050	<0.00050	0.0168	0.0167	0.0164	<0.00050	<0.00050
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	0.073	<0.000050	<0.000050	0.000070	0.000063	0.000053	<0.000050	0.000050	0.000147	0.000138
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.419	0.428	0.626	0.642	0.549	0.519	0.530	0.684	0.710
Rubidium	mg/L	0.0002	-	0.00060	0.00064	0.00052	0.00056	0.00087	0.00074	0.00080	0.00055	0.00055
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.47	0.49	1.14	1.15	0.60	0.51	0.58	0.62	0.63
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	0.414	0.414	2.33	2.44	0.526	0.538	0.507	4.52	4.65
Strontium	mg/L	0.0002	0.25	0.0047	0.0045	0.0222	0.0214	0.0077	0.0064	0.0076	0.0267	0.0259
Sulfur	mg/L	0.5	-	<0.50	<0.50	1.61	1.55	<0.50	<0.50	<0.50	2.87	2.65
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	0.00567	0.00542	<0.00030	<0.00030	0.00546	0.00375	0.00444	<0.00030	<0.00030
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000072	0.000057	0.0000977	0.0000962	0.000120	0.000075	0.000122	0.00140	0.00126
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	0.00027	0.00024	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	0.00022

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date								
				2021				2022				
				14-Jun-21	14-Jun-21	16-Aug-21	16-Aug-21	20-Jun-22	20-Jun-22	20-Jun-22	29-Aug-22	29-Aug-22
				DS	US	DS	US	DS	US	DS Field Duplicate	DS	US
Dissolved Metals and Non-Metals												
Aluminum	mg/L	0.0010	-	0.0146	0.0152	<0.0050	<0.0050	0.0060	0.0084	0.0062	<0.0050	<0.0050
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	0.00010	<0.00010	<0.00010	<0.00010	0.00010	0.00011
Barium	mg/L	0.00010	-	0.00140	0.00139	0.00612	0.00611	0.00217	0.00203	0.00208	0.00662	0.00644
Boron	mg/L	0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000055	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.050	-	7.23	6.98	37.1	36.9	11.7	10.5	11.6	40.7	39.80000
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0002	-	<0.00020	<0.00020	0.00043	0.00047	0.00036	<0.00020	<0.00020	0.00	0.00
Iron	mg/L	0.01	-	0.016	0.016	<0.010	<0.010	0.016	0.018	0.015	<0.010	<0.010
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	0.005	-	3.26	3.27	18.6	18.4	4.70	4.74	4.61	23.600000	23.5
Manganese	mg/L	0.0001	-	0.00392	0.00406	<0.00050	<0.00050	0.0105	0.0110	0.0102	<0.00050	<0.00050
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	-	<0.000050	<0.000050	0.000058	0.000056	0.000055	<0.000050	<0.000050	0.000127	0.000137
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.359	0.350	0.653	0.658	0.453	0.464	0.449	0.7170	0.714
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silver	mg/L	0.00001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	0.409	0.411	2.41	2.44	0.56	0.514	0.491	4.52	4.64
Strontium	mg/L	0.0002	0.25	0.0042	0.0039	0.0224	0.0220	0.0073	0.0060	0.0072	0.02600	0.02690
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.000010	-	0.000066	0.000046	0.000949	0.000946	0.000103	0.0000630	0.000102	0.00128	0.00124
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.0010	Variable ^e	<0.0010	<0.0010	0.0012	<0.0010	0.0019	0.0015	0.0015	0.0016	<0.0010
Miscellaneous (Water)												
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	<0.0020	<0.0020

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	21-Aug-23	21-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
In Situ Parameters													
Temperature	°C	-	-	1.3	1.3	7.7	7.4	6.2	6.3	2.7	2.8	5.4	5.5
Specific Conductance	µS/cm	-	-	76.7	69.1	133	131	271.0	269.1	57.2	55.3	304.6	304.3
Dissolved Oxygen	mg/L	-	<9.5	13.12	13.30	11.53	11.68	11.88	11.83	13.04	13.26	11.91	11.66
Dissolved Oxygen	%	-	-	95.7	96.9	99.0	99.4	99.0	98.7	96.4	98.2	94.3	92.6
pH	pH units	-	6.5 - 9.0	7.81	7.82	8.11	8.09	8.47	8.40	7.76	7.61	8.31	8.30
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters													
pH	pH units	0.1	6.5 - 9.0	7.76	7.73	8.05	8.02	8.34	8.35	7.50	7.03	8.30	8.34
Conductivity	µS/cm	1	-	79.3	71.7	140	138	280	276	67.8	59.1	326	323
Turbidity	NTU	0.1	-	0.76	0.76	1.31	0.9	0.35	0.35	0.96	0.88	0.13	< 0.10
Hardness	mg/L as CaCO₃	-	-	41.4	36.6	70.0	69.3	148.0	149.1	30.7	30.9	175	170
Total Suspended Solids	mg/L	1	Variable ⁸	3.7	2.8	1.3	<1.0	<1.0	<1.0	2.8	2.0	< 1.0	< 1.0
Total Dissolved Solids	mg/L	19 - 20	-	40	36	71	72	106	109	40	39	171	162
Dissolved Anions													
Alkalinity	mg/L as CaCO₃	2.0	-	67.1	57.9	70.3	72.4	143	141	35.3	29.4	166	166
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	0.7	0.63	1.2	1.2	3.77	3.98	0.71	< 0.50	4.73	4.68
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients													
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Nitrate	mg/L N	0.02	3.0	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	< 0.020	< 0.020	< 0.020	< 0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.0050	<0.0050	<0.0050	<0.0050	0.0072	0.0084	< 0.0050	< 0.0050	0.0079	< 0.0050
Total Phosphorus	mg/L	0.002	0.01	0.0072	0.0075	0.0037	0.004	0.0029	0.0027	0.0093	0.0042	< 0.0020	< 0.0020
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds													
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	3.28	3.34	1.7	1.78	3.83	18.4	2.56	2.61	3.27	3.37
Total Organic Carbon	mg/L	0.5	-	3.53	3.49	2.23	2.22	3.75	3.82	2.63	2.43	3.03	3.11
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	21-Aug-23	21-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
Total Metals and Non-Metals													
Aluminum	mg/L	0.003	Variable ^f	0.043	0.0422	0.018	0.0122	0.0102	0.0131	0.0427	0.0271	< 0.0030	< 0.0030
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	< 0.00010	< 0.00010	0.00013	0.00013
Barium	mg/L	0.0001	-	0.00159	0.00144	0.0029	0.0027	0.00493	0.00493	0.00153	0.00134	0.00592	0.00601
Beryllium	mg/L	0.00002	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Calcium	mg/L	0.05	-	10.5	8.66	15.8	15.2	32.4	31.9	7.23	7.16	37.6	37.7
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00359	0.00069	< 0.00050	< 0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.00050	<0.00050	0.00103	<0.00050	0.00052	<0.00050	< 0.00050	< 0.00050	0.00052	0.00060
Iron	mg/L	0.01	0.300	0.046	0.046	0.019	0.012	0.016	0.02	0.067	0.033	< 0.010	< 0.010
Lead	mg/L	0.00005	0.001 - 0.007 ^c	0.000055	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000066	< 0.000050	< 0.000050	< 0.000050
Lithium	mg/L	0.001	-	<0.0010	<0.0010	<0.0010	<0.0010	0.0016	0.0016	< 0.0010	< 0.0010	0.0016	0.0016
Magnesium	mg/L	0.005	-	4.23	4.38	7.42	7.45	16.2	16	3.20	3.59	19.5	19.6
Manganese	mg/L	0.0001	Variable ^c	0.00427	0.00491	0.00097	0.00047	0.00045	0.00057	0.00292	0.00233	< 0.00010	< 0.00010
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Molybdenum	mg/L	0.00005	0.073	<0.000050	<0.000050	<0.000050	<0.000050	0.000052	0.000054	< 0.000050	0.000064	0.000103	0.000099
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	0.00073	<0.00050	<0.00050	0.00169	< 0.00050	< 0.00050	< 0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	mg/L	0.05	-	0.334	0.34	0.336	0.334	0.52	0.516	0.290	0.287	0.620	0.623
Rubidium	mg/L	0.0002	-	0.00047	0.00041	0.00032	0.0003	0.00041	0.00042	0.00035	0.00029	0.00051	0.00049
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Silicon	mg/L	0.1	-	0.37	0.34	0.55	0.52	1.22	1.22	0.28	0.26	0.94	0.97
Silver	mg/L	0.00001	0.25	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Sodium	mg/L	0.05	-	0.296	0.312	0.634	0.627	2.07	2.06	1.16	0.268	3.06	3.08
Strontium	mg/L	0.0002	0.25	0.00571	0.00422	0.00847	0.00795	0.0185	0.0182	0.00377	0.00361	0.0234	0.0231
Sulfur	mg/L	0.5	-	<0.50	<0.50	<0.50	<0.50	1.25	1.22	< 0.50	< 0.50	1.46	1.62
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	0.00012
Titanium	mg/L	0.0003	-	0.0014	0.00149	0.00076	0.00037	0.00051	0.00051	0.00156	0.00121	< 0.00030	< 0.00030
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Uranium	mg/L	0.00001	0.015	0.000083	0.000046	0.000228	0.000224	0.000779	0.000737	0.000043	0.000038	0.00100	0.000988
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0041	< 0.0030	< 0.0030	< 0.0030
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	< 0.00020	< 0.00020	0.00020	0.00021

Table 2.2 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-050 (CV099)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	21-Aug-23	21-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
Dissolved Metals and Non-Metals													
Aluminum	mg/L	0.0010	-	0.0054	0.0046	0.0027	0.0022	0.002	0.0021	0.0057	0.0044	0.0052	< 0.0010
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	0.00010
Barium	mg/L	0.00010	-	0.00134	0.00136	0.00272	0.00261	0.00498	0.00506	0.00123	0.00113	0.00572	0.00568
Boron	mg/L	0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Calcium	mg/L	0.050	-	9.99	8.26	15.8	15.7	32.3	31.9	7.02	6.80	37.7	35.9
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Copper	mg/L	0.0002	-	0.00024	<0.00020	0.00036	0.00027	0.00046	0.00046	0.00020	< 0.00020	0.00054	0.00049
Iron	mg/L	0.01	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Magnesium	mg/L	0.005	-	3.95	3.85	7.34	7.24	16.2	16.7	3.19	3.38	19.6	19.5
Manganese	mg/L	0.0001	-	0.0027	0.0032	0.00021	0.00014	0.00017	0.00022	0.00141	0.00136	< 0.00010	< 0.00010
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Molybdenum	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	0.000121	0.000053	< 0.000050	< 0.000050	0.000096	0.000086
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	mg/L	0.05	-	0.33	0.32	0.38	0.369	0.507	0.506	0.262	0.275	0.581	0.579
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Silver	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Sodium	mg/L	0.05	-	0.324	0.297	0.661	0.655	2.1	2.05	0.245	0.245	2.99	3.03
Strontium	mg/L	0.0002	0.25	0.00558	0.00408	0.0087	0.00863	0.0191	0.0176	0.00355	0.00341	0.0229	0.0232
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Uranium	mg/L	0.000010	-	0.00007	0.000041	0.000224	0.00021	0.000764	0.000712	0.000037	0.000029	0.000946	0.000947
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Zinc	mg/L	0.0010	Variable ^e	0.0018	<0.0010	0.0022	<0.0010	0.0013	<0.0010	0.0023	< 0.0010	0.0015	< 0.0010
Miscellaneous (Water)													
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.3 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-053 (CV093)

Parameters	Units	2024 LOR	CCME Guideline	Date								
				2006			2015		2016		2017	
				14-Jun-06	03-Aug-06	08-Sep-06	12-Aug-15	12-Aug-15	30-Jun-16	30-Jun-16	29-Jun-17	29-Jun-17
							US	DS	DS	US	US	DS
In Situ Parameters												
Temperature	°C	-	-	-0.08	9.96	5.77	5.5	5.9	11.3	5.6	3.2	3.8
Specific Conductance	µS/cm	-	-	0.148	0.160	0.182	0.340	0.320	11.570	11.570	0.197	0.182
Dissolved Oxygen	mg/L	-	<9.5	13.70	10.81	12.46	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	-	-	-	99.4	101.1	99.4	99.0	101.8	102.0
pH	pH units	-	6.5 - 9.0	8.32	8.15	8.24	8.42	8.43	8.02	7.99	7.90	7.85
Wetted Width	m	-	-	20	33	28	2.5	2.5	-	-	1.3	3.8
Average Depth	m	-	-	0.15	0.20	0.20	0.50	0.50	-	-	0.09	0.06
Flow Rate	m³/s	-	-	2	4.62	6.85	-	-	-	-	0.02223	0.10944
Physical Parameters												
pH	pH units	0.1	6.5 - 9.0	7.91	7.84	7.64	8.36	8.26	8.27	8.2	8.13	8.15
Conductivity	µS/cm	1	-	161	165	190	-	-	-	-	-	-
Turbidity	NTU	0.1	-	0.5	0.2	-	0.19	1.22	0.92	1.31	0.31	1.74
Hardness	mg/L as CaCO₃	-	-	85	86	95	152	158	99	100	81	84
Total Suspended Solids	mg/L	1	Variable ^g	-	-	-	<2.0	2.0	<2.0	4.4	2.1	5.5
Total Dissolved Solids	mg/L	20	-	105	107	123	147	159	115	105	89	86
Dissolved Anions												
Alkalinity	mg/L as CaCO₃	2.0	-	80	85	93	155	163	103	99	77	81
Bromide	mg/L	-	-	<0.05	<0.05	<0.05	-	-	-	-	-	-
Chloride	mg/L	0.5	120	<1	<1	<1	0.74	3.07	0.61	0.57	<0.50	0.6
Fluoride	mg/L	-	-	-	-	-	-	-	0.036	0.03	0.028	0.027
Sulfate	mg/L	-	-	3	2	7	2.66	3.9	1.22	1.24	0.62	1
Nutrients												
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	0.04	<0.02	<0.02	0.23	<0.15	<0.15	<0.15	-	-
Nitrite	mg/L N	0.01	0.060	<0.005	<0.005	0.015	-	-	-	-	-	-
Nitrate	mg/L N	0.02	3.0	<0.10	<0.10	<0.10	0.023	0.026	<0.020	0.023	<0.020	<0.020
Nitrate + Nitrite	mg/L N	-	-	<0.10	<0.10	<0.10	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	-	-	-	-	-	<0.020	<0.020	<0.020	<0.020
Total Phosphorus	mg/L	0.002	0.01	<0.01	<0.01	<0.01	<0.0030	0.0037	0.0216	0.0657	0.0042	0.0046
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds												
Phenols	mg/L	-	0.004	<0.001	<0.001	<0.001	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	-	-	-	1.8	2.4	<1.0	<1.0	1.18	1.05
Total Organic Carbon	mg/L	0.5	-	-	-	-	1.8	2.1	1.2	<1.0	1.41	2.72
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	0.23	<0.15	<0.15	<0.15	<0.15	<0.15
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-

Table 2.3 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-053 (CV093)

Parameters	Units	2024 LOR	CCME Guideline	Date								
				2006			2015		2016		2017	
				14-Jun-06	03-Aug-06	08-Sep-06	12-Aug-15	12-Aug-15	30-Jun-16	30-Jun-16	29-Jun-17	29-Jun-17
							US	DS	DS	US	US	DS
Total Metals and Non-Metals												
Aluminum	mg/L	0.003	Variable ^f	<0.005	<0.005	0.007	0.018	0.012	0.025	0.139	0.0133	0.048
Antimony	mg/L	0.0001	-	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.001	<0.001	<0.001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.0001	-	<0.01	<0.01	<0.01	-	-	0.00459	0.00434	0.00172	0.00297
Beryllium	mg/L	0.00002	-	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.01	<0.01	<0.01	-	-	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^e	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Calcium	mg/L	0.05	-	24	25	27	44	43.6	31.2	31.6	26.8	26.9
Cesium	mg/L	0.00001	-	-	-	-			<0.000010	0.000018	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	<0.001	<0.001	<0.001	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.0002	<0.0002	<0.0002	-	-	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Iron	mg/L	0.01	0.300	<0.03	<0.03	<0.03	<0.050	<0.050	<0.050	0.179	<0.050	0.057
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.001	<0.001	<0.001	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	<0.000050
Lithium	mg/L	0.001	-	-	-	-	-	-	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	0.005	-	6.0	5.0	6.0	11.8	13.8	5.02	5.19	3.5	4.13
Manganese	mg/L	0.0001	Variable ^c	<0.01	<0.01	<0.01	<0.00050	<0.00050	0.00058	0.00362	<0.00050	0.00128
Mercury	mg/L	0.000005	0.000026	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	0.073	<0.005	<0.005	<0.005	<0.00050	<0.00050	0.000093	0.000091	<0.000050	0.000068
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.005	<0.005	<0.005	<0.0010	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.24	0.15	0.23	0.339	0.515	0.618	0.539	0.299	0.475
Rubidium	mg/L	0.0002	-	-	-	-	-	-	0.00122	0.00107	0.00023	0.00064
Selenium	mg/L	0.00005	0.001	<0.001	<0.001	<0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	<0.0001	<0.0001	<0.0001	-	-	0.643	0.846	0.44	0.59
Silver	mg/L	0.00001	0.25	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	0.34	0.23	0.58	0.61	1.75	<0.50	<0.50	<0.50	<0.50
Strontium	mg/L	0.0002	0.25	0.019	0.018	0.022	-	-	0.0295	0.0284	0.0216	0.0242
Sulfur	mg/L	0.5	-	-	-	-	-	-	0.74	<0.50	<0.50	0.66
Tellurium	mg/L	0.0002	-	-	-	-	-	-	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.01	<0.01	<0.01	-	-	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	-	-	-	-	-	0.00097	0.00745	0.00043	0.00305
Tungsten	mg/L	0.0001	-	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	-	-	-	0.000422	0.00059	0.000159	0.000159	0.000082	0.000125
Vanadium	mg/L	0.0005	0.12	<0.001	<0.001	<0.001	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.01	<0.01	<0.01	<0.0030	0.0033	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	-	-	-	-	-	<0.00030	<0.00030	<0.00030	<0.00030

Table 2.3 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-053 (CV093)

Parameters	Units	2024 LOR	CCME Guideline	Date								
				2006			2015		2016		2017	
				14-Jun-06	03-Aug-06	08-Sep-06	12-Aug-15	12-Aug-15	30-Jun-16	30-Jun-16	29-Jun-17	29-Jun-17
							US	DS	DS	US	US	DS
Dissolved Metals and Non-Metals												
Aluminum	mg/L	0.0010	-	<0.005	<0.005	<0.005	<0.0050	0.0412	-	-	-	-
Arsenic	mg/L	0.00010	-	<0.001	<0.001	<0.001	<0.00010	<0.00010	-	-	-	-
Barium	mg/L	0.00010	-	<0.01	<0.01	<0.01	-	-	-	-	-	-
Boron	mg/L	0.010	-	<0.01	<0.01	<0.01	-	-	-	-	-	-
Cadmium	mg/L	0.0000050	-	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010	-	-	-	-
Calcium	mg/L	0.050	-	24	26	28	43	41.9	-	-	-	-
Chromium	mg/L	0.0005	-	<0.001	<0.001	<0.001	-	-	-	-	-	-
Cobalt	mg/L	0.0001	-	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-
Copper	mg/L	0.0002	-	<0.001	<0.001	<0.001	0.00024	0.00038	-	-	-	-
Iron	mg/L	0.01	-	<0.03	<0.03	<0.03	<0.010	0.03	-	-	-	-
Lead	mg/L	0.00005	Variable ^e	<0.001	<0.001	<0.001	<0.000050	<0.000050	-	-	-	-
Magnesium	mg/L	0.005	-	6	5	6	10.9	13	-	-	-	-
Manganese	mg/L	0.0001	-	<0.01	<0.01	<0.01	<0.00050	0.00051	-	-	-	-
Mercury	mg/L	0.000005	-	-	-	-	<0.000010	<0.000010	-	-	-	-
Molybdenum	mg/L	0.00005	-	<0.005	<0.005	<0.005	0.000076	0.000118	-	-	-	-
Nickel	mg/L	0.0005	-	<0.005	<0.005	<0.005	<0.00050	<0.00050	-	-	-	-
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.24	0.15	0.25	0.344	0.538	-	-	-	-
Selenium	mg/L	0.000050	-	<0.001	<0.001	<0.001	<0.000050	<0.000050	-	-	-	-
Silver	mg/L	0.00001	-	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-
Sodium	mg/L	0.05	-	0.32	0.24	0.4	0.6	1.61	-	-	-	-
Strontium	mg/L	0.0002	0.25	0.018	0.019	0.022	-	-	-	-	-	-
Thallium	mg/L	0.000010	-	-	-	-	<0.000010	<0.000010	-	-	-	-
Tin	mg/L	0.00010	-	<0.01	<0.01	<0.01	-	-	-	-	-	-
Uranium	mg/L	0.000010	-	-	-	-	0.000414	0.000573	-	-	-	-
Vanadium	mg/L	0.00050	-	<0.001	<0.001	<0.001	-	-	-	-	-	-
Zinc	mg/L	0.0010	Variable ^e	<0.01	<0.01	<0.01	<0.0010	0.0025	-	-	-	-
Miscellaneous (Water)												
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-		-	-

Table 2.3 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-053 (CV093)

Parameters	Units	2024 LOR	CCME Guideline	Date												
				2018		2019				2020		2021				
				03-Jul-18	03-Jul-18	21-Jun-19	21-Jun-19	27-Jul-19	27-Jul-19	28-Jun-20	28-Jun-20	14-Jun-21	14-Jun-21	16-Aug-21	16-Aug-21	16-Aug-21
				US	DS	US	DS	US	DS	US	DS	DS	US	DS	DS Travel Blank	US
In Situ Parameters																
Temperature	°C	-	-	0.5	2.2	3.4	7.6	4.8	8.9	3.9	8.0	3.5	0.3	4.9	-	3.7
Specific Conductance	µS/cm	-	-	0.211	0.197	0.2043	0.2032	0.2934	0.2754	0.1997	0.2005	147.2	125.8	274.1	-	278.1
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	-	-	13.1	11.9	13.44	14.34	12.46	-	12.75
Dissolved Oxygen	%	-	-	97.4	98.1	100.8	99.8	97.5	99.2	99.8	100.6	102.3	100.0	99.7	-	97.1
pH	pH units	-	6.5 - 9.0	8.12	8.12	8.22	8.40	8.21	8.40	8.05	8.07	8.05	8.14	8.25	-	8.40
Wetted Width	m	-	-	0.2	1.1	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	0.04	0.03	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	0.002	0.015	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters																
pH	pH units	0.1	6.5 - 9.0	8.15	8.17	8.2	8.36	8.08	8.31	8.16	8.28	8.13	8.09	8.16	5.51	8.05
Conductivity	µS/cm	1	-	-	-	-	-	-	-	-	-	154	134	287	<1.0	288
Turbidity	NTU	0.1	-	0.66	0.99	0.23	0.74	0.20	2.20	0.18	0.93	15.6	2.53	0.35	<0.10	0.19
Hardness	mg/L as CaCO ₃	-	-	112	108	128	123	-	-	-	-	77.2	66.9	150	<0.50	151
Total Suspended Solids	mg/L	1	Variable ⁶	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	<2.0	2.6	25.8	2.8	1.5	<2.0	<2.0
Total Dissolved Solids	mg/L	20	-	128	116	143	139	138	149	138	121	90	82	154	<10	151
Dissolved Anions																
Alkalinity	mg/L as CaCO ₃	2.0	-	99	98	117	115	-	-	-	-	90.8	80.8	143	<1.0	147
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	1.10	1.95	1.16	2.72	-	-	-	-	2.10	1.14	1.71	<0.50	1.65
Fluoride	mg/L	-	-	0.053	0.035	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	3.02	2.04	-	-	-	-	-	-	-	-	-	-	-
Nutrients																
NH ₃ +NH ₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	-	-	<0.010	<0.010	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate	mg/L N	0.02	3.0	0.054	0040	0.038	0.032	-	-	-	-	0.038	0.020	<0.020	<0.020	<0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	0.038	0.032	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.020	<0.020	<0.010	0.010	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010
Total Phosphorus	mg/L	0.002	0.01	<0.0030	<0.0030	<0.0030	<0.0030	-	-	-	-	0.0090	0.0037	<0.0030	<0.0030	<0.0030
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds																
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	1.17	1.34	1.71	1.74	-	-	-	-	2.54	2.13	2.65	1.14	2.21
Total Organic Carbon	mg/L	0.5	-	1.49	1.46	2.28	2.63	-	-	-	-	2.36	1.98	4.85	4.27	5.31
Total Kjeldahl Nitrogen	mg/L	-	-	<0.15	<0.15	-	-	-	-	-	-	0.120	0.100	0.060	0.100	0.100
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.3 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-053 (CV093)

Parameters	Units	2024 LOR	CCME Guideline	Date												
				2018		2019				2020		2021				
				03-Jul-18	03-Jul-18	21-Jun-19	21-Jun-19	27-Jul-19	27-Jul-19	28-Jun-20	28-Jun-20	14-Jun-21	14-Jun-21	16-Aug-21	16-Aug-21	16-Aug-21
				US	DS	US	DS	US	DS	US	DS	DS	US	DS	DS Travel Blank	US
Total Metals and Non-Metals																
Aluminum	mg/L	0.003	Variable ^f	0.0315	0.0346	0.0211	0.0332	-	-	-	-	0.224	0.0703	0.0173	<0.0050	0.0206
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.0001	-	0.0019	0.00283	0.00229	0.00415	-	-	-	-	0.00397	0.00222	0.00310	<0.00010	0.00274
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	0.011	<0.010	<0.010	<0.010	-	-	-	-	<0.010	<0.010	0.013	<0.010	0.015
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	35.4	34.8	38.4	37.7	-	-	-	-	26.4	23.0	45.5	<0.050	45.6
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	-	-	-	-	0.000042	0.000014	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0010	<0.0010	<0.0010	<0.0010	-	-	-	-	<0.00050	<0.00050	<0.00050	0.0110	<0.00050
Iron	mg/L	0.01	0.300	0.022	0.026	0.021	0.023	-	-	-	-	0.173	0.049	0.015	<0.010	0.023
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.000050	<0.000050	<0.000050	<0.000050	-	-	-	-	0.000217	0.000061	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.001	-	0.002	0.0014	0.0026	0.0024	-	-	-	-	0.0019	<0.0010	0.0031	<0.0010	0.0034
Magnesium	mg/L	0.005	-	5.74	5.15	6.60	6.10	-	-	-	-	3.92	3.14	8.56	<0.0050	8.60
Manganese	mg/L	0.0001	Variable ^c	<0.00050	0.00074	0.00053	0.00085	-	-	-	-	0.00465	0.00148	0.00069	<0.00050	0.00064
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.000010	<0.000010	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	0.073	0.000118	0.000094	0.000127	0.000130	-	-	-	-	0.000122	0.000064	0.000223	<0.000050	0.000209
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	<0.00050	<0.00050	<0.00050	0.00133	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.383	0.437	0.443	0.682	-	-	-	-	0.631	0.326	0.564	<0.050	0.558
Rubidium	mg/L	0.0002	-	<0.00020	0.0006	0.00021	0.00112	-	-	-	-	0.00129	0.00050	0.00043	<0.00020	0.00021
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.79	0.64	0.87	0.75	-	-	-	-	1.03	0.52	1.14	<0.10	1.21
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	0.234	0.232	0.251	0.275	-	-	-	-	0.313	0.241	0.331	<0.050	0.310
Strontium	mg/L	0.0002	0.25	0.0337	0.0336	0.0369	0.0434	-	-	-	-	0.0299	0.0227	0.0462	<0.0010	0.0453
Sulfur	mg/L	0.5	-	1.2	0.9	2.10	1.27	-	-	-	-	0.52	<0.50	3.29	<0.50	2.70
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	-	-	-	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	<0.0020	0.00136	0.00103	0.00113	-	-	-	-	0.00774	0.00192	<0.0070	<0.00030	0.00110
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000174	0.000193	0.000196	0.000347	-	-	-	-	0.000544	0.000164	0.000464	<0.000010	0.000299
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	0.0032	-	-	-	-	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	<0.00030	<0.00030	<0.00020	<0.00020	-	-	-	-	0.00021	<0.00020	<0.00020	<0.00020	<0.00020

Table 2.3 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-053 (CV093)

Parameters	Units	2024 LOR	CCME Guideline	Date								Date						
				2018		2019				2020		2021						
				03-Jul-18	03-Jul-18	21-Jun-19	21-Jun-19	27-Jul-19	27-Jul-19	28-Jun-20	28-Jun-20	14-Jun-21	14-Jun-21	16-Aug-21	16-Aug-21	16-Aug-21		
				US	DS	US	DS	US	DS	US	DS	DS	US	DS	DS Travel Blank	US		
Dissolved Metals and Non-Metals																		
Aluminum	mg/L	0.0010	-	-	-	-	-	-	-	-	-	0.0151	0.0080	<0.0050	<0.0050	<0.0050		
Arsenic	mg/L	0.00010	-	-	-	-	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Barium	mg/L	0.00010	-	-	-	-	-	-	-	-	-	0.00236	0.00171	0.00320	<0.00010	0.00272		
Boron	mg/L	0.010	-	-	-	-	-	-	-	-	-	<0.010	<0.010	0.013	<0.010	0.014		
Cadmium	mg/L	0.0000050	-	-	-	-	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050		
Calcium	mg/L	0.050	-	-	-	-	-	-	-	-	-	24.8	21.9	45.6	<0.050	45.9		
Chromium	mg/L	0.0005	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050		
Cobalt	mg/L	0.0001	-	-	-	-	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Copper	mg/L	0.0002	-	-	-	-	-	-	-	-	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020		
Iron	mg/L	0.01	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010		
Lead	mg/L	0.00005	Variable ⁶	-	-	-	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		
Magnesium	mg/L	0.005	-	-	-	-	-	-	-	-	-	3.69	2.98	8.71	<0.0050	8.92		
Manganese	mg/L	0.0001	-	-	-	-	-	-	-	-	-	0.00128	0.00093	<0.00050	<0.00050	<0.00050		
Mercury	mg/L	0.000005	-	-	-	-	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050		
Molybdenum	mg/L	0.00005	-	-	-	-	-	-	-	-	-	0.000110	0.000056	0.000218	<0.000050	0.000199		
Nickel	mg/L	0.0005	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050		
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Potassium	mg/L	0.05	-	-	-	-	-	-	-	-	-	0.503	0.294	0.585	<0.050	0.552		
Selenium	mg/L	0.000050	-	-	-	-	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		
Silver	mg/L	0.00001	-	-	-	-	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		
Sodium	mg/L	0.05	-	-	-	-	-	-	-	-	-	0.279	0.221	0.341	<0.050	0.324		
Strontium	mg/L	0.0002	0.25	-	-	-	-	-	-	-	-	0.0277	0.0216	0.0466	<0.0010	0.0461		
Thallium	mg/L	0.000010	-	-	-	-	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010		
Tin	mg/L	0.00010	-	-	-	-	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Uranium	mg/L	0.000010	-	-	-	-	-	-	-	-	-	0.000447	0.000145	0.000445	<0.000010	0.000277		
Vanadium	mg/L	0.00050	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050		
Zinc	mg/L	0.0010	Variable ⁶	-	-	-	-	-	-	-	-	<0.0010	<0.0010	0.0022	<0.0010	<0.0010		
Miscellaneous (Water)																		
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

Table 2.3 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-053 (CV093)

Parameters	Units	2024 LOR	CCME Guideline	Date												
				2022			2023						2024			
				20-Jun-22	20-Jun-22	20-Jun-22	25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	21-Aug-23	21-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS Field Blank	DS	US	DS	US	DS	US	DS	US	DS	US
In Situ Parameters																
Temperature	°C	-	-	5.4	3.6	-	-	-	-	-	5.0	5.6	6.3	4.7	-	-
Specific Conductance	µS/cm	-	-	150.5	141.5	-	-	-	-	-	275.5	279.7	158.3	157.3	-	-
Dissolved Oxygen	mg/L	-	<9.5	12.48	12.69	-	-	-	-	-	12.08	12.06	12.5	12.7	-	-
Dissolved Oxygen	%	-	-	98.7	95.2	-	-	-	-	-	97.9	99.3	101.1	99.2	-	-
pH	pH units	-	6.5 - 9.0	8.09	8.07	-	-	-	-	-	8.19	8.21	8.0	8.0	-	-
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters																
pH	pH units	0.1	6.5 - 9.0	8.09	8.08	6.64	-	-	-	-	8.33	8.38	7.85	7.98	-	-
Conductivity	µS/cm	1	-	151	142	<1.0	-	-	-	-	281	299	166	163	-	-
Turbidity	NTU	0.1	-	4.12	4.90	<0.10	-	-	-	-	1.4	0.8	3.14	0.28	-	-
Hardness	mg/L as CaCO₃	-	-	82.8	75.6	<0.50	-	-	-	-	148	149	87.7	89.2	-	-
Total Suspended Solids	mg/L	1	Variable ^g	5.7	5.7	<2.0	-	-	-	-	9.4	1.7	6.8	3.5	-	-
Total Dissolved Solids	mg/L	20	-	97	93	34	-	-	-	-	126	121	105	102	-	-
Dissolved Anions																
Alkalinity	mg/L as CaCO₃	2.0	-	77.4	75.0	<1.0	-	-	-	-	138	141	86.8	81.3	-	-
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	1.78	0.85	<0.50	-	-	-	-	1.4	1.4	0.92	< 0.50	-	-
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients																
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	-	-	-	-	<0.010	<0.010	< 0.010	< 0.010	-	-
Nitrate	mg/L N	0.02	3.0	0.023	<0.020	<0.020	-	-	-	-	<0.020	<0.020	0.023	< 0.020	-	-
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.010	<0.010	<0.010	-	-	-	-	<0.0050	<0.0050	0.0057	< 0.0050	-	-
Total Phosphorus	mg/L	0.002	0.01	<0.0030	<0.0030	<0.0030	-	-	-	-	0.003	0.0048	0.0020	0.0027	-	-
Dissolved Phosphorus	mg/L	-	-	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-
Organic Compounds																
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	1.78	1.69	<0.50	-	-	-	-	2.31	2.03	1.97	1.85	-	-
Total Organic Carbon	mg/L	0.5	-	1.66	1.49	<0.50	-	-	-	-	1.88	1.82	1.60	1.62	-	-
Total Kjeldahl Nitrogen	mg/L	-	-	0.068	0.064	<0.050	-	-	-	-	-	-	-	-	-	-
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: The Upstream, Downstream, and Culvert itself was dry during the August Sampling event. Therefore no results are available.

Table 2.3 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-053 (CV093)

Parameters	Units	2024 LOR	CCME Guideline	Date												
				2022			2023						2024			
				20-Jun-22	20-Jun-22	20-Jun-22	25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	21-Aug-23	21-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS Field Blank	DS	US	DS	US	DS	US	DS	US	DS	US
Total Metals and Non-Metals																
Aluminum	mg/L	0.003	Variable ^f	0.1250	0.0340	0.0055	-	-	-	-	0.0329	0.0306	0.0460	0.0331	-	-
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	< 0.00010	< 0.00010	-	-
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	< 0.00010	< 0.00010	-	-
Barium	mg/L	0.0001	-	0.00286	0.00165	<0.00010	-	-	-	-	0.00317	0.00301	0.00227	0.00176	-	-
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.000020	<0.000020	< 0.000020	< 0.000020	-	-
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	-	-	-	-	<0.000050	<0.000050	< 0.000050	< 0.000050	-	-
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	-	-	-	-	0.014	0.014	< 0.010	< 0.010	-	-
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	-	-	-	-	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	-	-
Calcium	mg/L	0.05	-	25.7	24.1	<0.050	-	-	-	-	47.1	46.7	28.1	30.0	-	-
Cesium	mg/L	0.00001	-	0.000028	<0.000010	<0.000010	-	-	-	-	<0.000010	<0.000010	0.000012	< 0.000010	-	-
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	-	-	-	-	<0.00050	<0.00050	< 0.00050	< 0.00050	-	-
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	< 0.00010	< 0.00010	-	-
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.00050	<0.00050	<0.00050	-	-	-	-	<0.00050	0.00059	< 0.00050	< 0.00050	-	-
Iron	mg/L	0.01	0.300	0.121	0.033	<0.010	-	-	-	-	0.037	0.039	0.038	0.032	-	-
Lead	mg/L	0.00005	0.001 - 0.007 ^c	0.00015	<0.000050	<0.000050	-	-	-	-	<0.000050	<0.000050	< 0.000050	< 0.000050	-	-
Lithium	mg/L	0.001	-	0.0019	0.001	<0.0010	-	-	-	-	0.0034	0.0031	0.0011	< 0.0010	-	-
Magnesium	mg/L	0.005	-	4.15	3.45	0.0074	-	-	-	-	8.41	8.52	4.24	4.49	-	-
Manganese	mg/L	0.0001	Variable ^c	0.00370	0.00102	<0.00050	-	-	-	-	0.00094	0.00099	0.00127	0.00092	-	-
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	-	-	-	-	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	-	-
Molybdenum	mg/L	0.00005	0.073	0.000094	0.000055	<0.000050	-	-	-	-	0.000216	0.000204	0.000083	0.000054	-	-
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	-	-	-	-	<0.00050	<0.00050	< 0.00050	< 0.00050	-	-
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	-	-	-	-	<0.050	<0.050	< 0.050	< 0.050	-	-
Potassium	mg/L	0.05	-	0.510	0.306	<0.050	-	-	-	-	0.548	0.479	0.406	0.296	-	-
Rubidium	mg/L	0.0002	-	0.00081	0.00028	<0.00020	-	-	-	-	0.00046	0.00036	0.00045	0.00025	-	-
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	-	-	-	-	<0.000050	<0.000050	< 0.000050	< 0.000050	-	-
Silicon	mg/L	0.1	-	0.66	0.40	<0.10	-	-	-	-	1.12	1.11	0.61	0.55	-	-
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	-	-	-	-	<0.000010	<0.000010	< 0.000010	< 0.000010	-	-
Sodium	mg/L	0.05	-	0.316	0.272	<0.050	-	-	-	-	0.322	0.331	0.237	0.208	-	-
Strontium	mg/L	0.0002	0.25	0.0293	0.0229	<0.0010	-	-	-	-	0.0454	0.0448	0.0294	0.0268	-	-
Sulfur	mg/L	0.5	-	0.53	<0.50	<0.50	-	-	-	-	3.63	3.34	< 0.50	< 0.50	-	-
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	-	-	-	-	<0.00020	<0.00020	< 0.00020	< 0.00020	-	-
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	-	-	-	-	<0.000010	<0.000010	< 0.000010	< 0.000010	-	-
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	< 0.00010	< 0.00010	-	-
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	< 0.00010	< 0.00010	-	-
Titanium	mg/L	0.0003	-	0.00469	0.00125	<0.00030	-	-	-	-	0.00167	0.0015	< 0.00200	0.00162	-	-
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	< 0.00010	< 0.00010	-	-
Uranium	mg/L	0.00001	0.015	0.000625	0.000128	<0.000010	-	-	-	-	0.000453	0.000286	0.000272	0.000124	-	-
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	-	-	-	-	<0.00050	<0.00050	< 0.00050	< 0.00050	-	-
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	-	-	-	-	<0.0030	<0.0030	0.0050	< 0.0030	-	-
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	0.00042	-	-	-	-	<0.00020	<0.00020	< 0.00020	< 0.00020	-	-

Note: The Upstream, Downstream, and Culvert itself was dry during the August Sampling event. Therefore no results are available.

Table 2.3 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-053 (CV093)

Parameters	Units	2024 LOR	CCME Guideline	Date												
				2022			2023						2024			
				20-Jun-22	20-Jun-22	20-Jun-22	25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	21-Aug-23	21-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS Field Blank	DS	US	DS	US	DS	US	DS	US	DS	US
Dissolved Metals and Non-Metals																
Aluminum	mg/L	0.0010	-	0.0110	0.0056	<0.0050	-	-	-	-	0.0063	0.0027	0.0356	0.0066	-	-
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	< 0.00010	< 0.00010	-	-
Barium	mg/L	0.00010	-	0.00241	0.00176	<0.00010	-	-	-	-	0.00308	0.00278	0.00213	0.00168	-	-
Boron	mg/L	0.010	-	<0.010	<0.010	<0.010	-	-	-	-	0.012	0.011	< 0.010	< 0.010	-	-
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	-	-	-	-	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	-	-
Calcium	mg/L	0.050	-	27.1	25.1	<0.050	-	-	-	-	45.4	45.5	28.0	28.6	-	-
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	-	-	-	-	<0.00050	<0.00050	< 0.00050	< 0.00050	-	-
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	< 0.00010	< 0.00010	-	-
Copper	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	-	-	-	-	0.00029	<0.00020	0.00020	< 0.00020	-	-
Iron	mg/L	0.01	-	<0.010	<0.010	<0.010	-	-	-	-	<0.010	<0.010	0.0190	< 0.010	-	-
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	<0.000050	-	-	-	-	<0.000050	<0.000050	< 0.000050	< 0.000050	-	-
Magnesium	mg/L	0.005	-	3.660000	3.120000	<0.0050	-	-	-	-	8.3	8.58	4.31	4.32	-	-
Manganese	mg/L	0.0001	-	0.00068	<0.00050	<0.00050	-	-	-	-	0.00037	<0.00010	0.00081	< 0.00010	-	-
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	-	-	-	-	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	-	-
Molybdenum	mg/L	0.00005	-	0.000099	<0.000050	<0.000050	-	-	-	-	0.00022	0.000202	0.000068	0.000062	-	-
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	-	-	-	-	<0.00050	<0.00050	< 0.00050	< 0.00050	-	-
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	<0.050	<0.050	< 0.050	< 0.050	-	-
Potassium	mg/L	0.05	-	0.481	0.324	<0.050	-	-	-	-	0.514	0.432	0.380	0.308	-	-
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	-	-	-	-	<0.000050	<0.000050	< 0.000050	< 0.000050	-	-
Silver	mg/L	0.00001	-	<0.000050	<0.000050	<0.000050	-	-	-	-	<0.000010	<0.000010	< 0.000010	< 0.000010	-	-
Sodium	mg/L	0.05	-	0.317	0.273	<0.050	-	-	-	-	0.315	0.316	0.226	0.267	-	-
Strontium	mg/L	0.0002	0.25	0.0316	0.0235	<0.0010	-	-	-	-	0.0455	0.0435	0.0294	0.0272	-	-
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	-	-	-	-	<0.000010	<0.000010	< 0.000010	< 0.000010	-	-
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	<0.00010	< 0.00010	< 0.00010	-	-
Uranium	mg/L	0.000010	-	0.000558	0.000132	<0.000010	-	-	-	-	0.000438	0.000276	0.000266	0.000119	-	-
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	-	-	-	-	<0.00050	<0.00050	< 0.00050	< 0.00050	-	-
Zinc	mg/L	0.0010	Variable ^e	0.0022	0.0015	0.0014	-	-	-	-	0.002	<0.0010	0.0036	< 0.0010	-	-
Miscellaneous (Water)																
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: The Upstream, Downstream, and Culvert itself was dry during the August Sampling event. Therefore no results are available.

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date							
				2005			2006			2011	
				13-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	02-Aug-06	08-Sep-06	20-Jul-11	27-Aug-11
In Situ Parameters											
Temperature	°C	-	-	0.22	9.28	4.02	-0.06	13.05	3.95	12.56	7.37
Specific Conductance	µS/cm	-	-	0.079	0.222	0.284	0.097	0.237	0.267	0.247	0.326
Dissolved Oxygen	mg/L	-	<9.5	13.48	10.95	12.72	14.17	11.43	12.55	-	11.92
Dissolved Oxygen	%	-	-	-	-	-	-	-	-	95.3	99.3
pH	pH units	-	6.5 - 9.0	7.36	8.30	7.96	8.22	8.26	8.36	8.15	8.34
Wetted Width	m	-	-	-	-	-	ice	9	9	3	7.3
Average Depth	m	-	-	-	-	-	0.15	0.25	0.2	0.2	0.3
Flow Rate	m³/s	-	-	-	-	-	-	0.74	0.96	-	-
Physical Parameters											
pH	pH units	0.1	6.5 - 9.0	-	-	-	7.56	8.10	8.10	8.15	8.22
Conductivity	µS/cm	1	-	83	234	269	104	244	277	245	333
Turbidity	NTU	0.1	-	0.40	<0.10	<0.10	0.5	<0.10	-	H.T.E	9D
Hardness	mg/L as CaCO₃	-	-	41.0	124	160	52	137	141	141	192
Total Suspended Solids	mg/L	1	Variable ^R	-	-	-	-	-	-	<2	<2
Total Dissolved Solids	mg/L	18 - 20	-	63	123	120	68	159	180	159	216
Dissolved Anions											
Alkalinity	mg/L as CaCO₃	2.0	-	40	120	141	51	132	146	132	170
Bromide	mg/L	-	-	<0.3	<0.3	<0.3	<0.05	<0.05	<0.05	<0.25	<0.25
Chloride	mg/L	0.5	120	0.9	0.2	0.6	<1	<1	<1	2	3
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	0.6	0.8	1.9	2.0	1.0	5.0	4	12
Nutrients											
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	0.2	0.6	0.8	<0.02	<0.02	<0.02	0.02	0.04
Nitrite	mg/L N	0.01	0.060	<0.06	<0.06	<0.06	<0.005	<0.005	0.018	<0.10	<0.005
Nitrate	mg/L N	0.02	3.0	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<0.10	0.18
Nitrate + Nitrite	mg/L N	-	-	<0.06	<0.06	<0.06	<0.10	<0.10	<0.10	<0.10	0.18
Ammonia, total as N	mg/L	0.005	Variable ^a	-	-	-	-	-	-	-	-
Total Phosphorus	mg/L	0.002	0.01	<0.02	<0.02	<0.10	<0.01	<0.01	<0.01	0.003	<0.003
Dissolved Phosphorus	mg/L	-	-	<0.02	<0.02	<0.10	-	-	-	-	-
Organic Compounds											
Phenols	mg/L	-	0.004	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Carbon	mg/L	0.5	-	-	-	-	-	-	-	1.7	0.8
Total Organic Carbon	mg/L	0.5	-	-	-	-	-	-	-	1.5	1.7
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	0.16	<0.10
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	0.5	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	<0.2	-

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date							
				2005			2006			2011	
				13-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	02-Aug-06	08-Sep-06	20-Jul-11	27-Aug-11
Total Metals and Non-Metals											
Aluminum	mg/L	0.003	Variable ^f	0.006	<0.004	<0.004	0.006	<0.005	<0.005	<0.003	<0.003
Antimony	mg/L	0.0001	-	<0.0004	<0.0004	<0.0004	-	-	-	<0.0001	<0.0001
Arsenic	mg/L	0.0001	0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	0.0001	<0.0001
Barium	mg/L	0.0001	-	<0.001	0.002	0.003	<0.01	<0.01	<0.01	0.0035	0.00429
Beryllium	mg/L	0.00002	-	<0.005	<0.005	<0.005	-	-	-	<0.0005	<0.0005
Bismuth	mg/L	0.00005	-	<0.0003	<0.0003	<0.0003	-	-	-	<0.0005	<0.0005
Boron	mg/L	0.01	1.5	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	0.012
Cadmium	mg/L	0.000005	Variable ^c	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.00001
Calcium	mg/L	0.05	-	13.2	35.5	44.7	17	41	41	40	53.8
Cesium	mg/L	0.00001	-	-	-	-	-	-	-	-	-
Chromium	mg/L	0.0005	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
Cobalt	mg/L	0.0001	Variable ^c	<0.0003	<0.0003	<0.0003	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0008	<0.0008	<0.0008	<0.001	<0.001	<0.001	<0.0005	<0.0005
Iron	mg/L	0.01	0.300	<0.05	<0.02	<0.02	<0.03	<0.03	<0.03	<0.03	<0.03
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.00005	<0.00005
Lithium	mg/L	0.001	-	-	-	-	-	-	-	<0.005	<0.005
Magnesium	mg/L	0.005	-	1.91	8.74	11.7	3	9	11	9.85	14
Manganese	mg/L	0.0001	Variable ^c	0.0016	<0.0007	<0.0007	<0.01	<0.01	<0.01	0.000078	<0.00005
Mercury	mg/L	0.000005	0.000026	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.00001
Molybdenum	mg/L	0.00005	0.073	<0.0003	<0.0003	<0.0003	<0.005	<0.005	<0.005	0.000082	0.000121
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	0.00052	<0.0005
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.26	0.26	0.27	0.22	0.28	0.30	0.382	0.37
Rubidium	mg/L	0.0002	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.00005	0.001	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001
Silicon	mg/L	0.1	-	-	-	-	-	-	-	0.73	0.67
Silver	mg/L	0.00001	0.25	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.000001	<0.000001
Sodium	mg/L	0.05	-	0.31	0.27	0.36	0.31	0.31	0.47	0.746	1.06
Strontium	mg/L	0.0002	0.25	0.0098	0.0226	0.0293	0.013	0.029	0.030	0.0283	0.039
Sulfur	mg/L	0.5	-	-	-	-	-	-	-	-	-
Tellurium	mg/L	0.0002	-	-	-	-	-	-	-	-	-
Thallium	mg/L	0.00001	0.0008	<0.0002	<0.0002	<0.0002	-	-	-	<0.0001	<0.0001
Thorium	mg/L	0.0001	-	-	-	-	-	-	-	-	-
Tin	mg/L	0.0001	-	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01	<0.0001	<0.0001
Titanium	mg/L	0.0003	-	<0.003	<0.003	<0.003	-	-	-	<0.01	<0.01
Tungstun	mg/L	0.0001	-	-	-	-	-	-	-	-	-
Uranium	mg/L	0.00001	0.015	-	-	-	-	-	-	0.000331	0.000562
Vanadium	mg/L	0.0005	0.12	<0.0009	<0.0009	<0.0009	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	mg/L	0.003	0.03	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01	<0.003	<0.003
Zirconium	mg/L	0.0002	-	-	-	-	-	-	-	-	-

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date							
				2005			2006			2011	
				13-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	02-Aug-06	08-Sep-06	20-Jul-11	27-Aug-11
Dissolved Metals and Non-Metals											
Aluminum	mg/L	0.0010	-	<0.004	<0.004	<0.004	<0.005	<0.005	<0.005	<0.003	<0.003
Arsenic	mg/L	0.00010	-	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.0001	<0.0001
Barium	mg/L	0.00010	-	<0.001	0.002	0.003	<0.01	<0.01	<0.01	0.00334	0.00408
Boron	mg/L	0.010	-	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	0.015	<0.01
Cadmium	mg/L	0.0000050	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.00001
Calcium	mg/L	0.050	-	13.1	37.5	42.4	16	40	40	39.4	52.5
Chromium	mg/L	0.0005	-	<0.001	0.002	0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
Cobalt	mg/L	0.0001	-	<0.0003	0.0004	<0.0003	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001
Copper	mg/L	0.0002	-	<0.0008	<0.0008	<0.0008	<0.001	<0.001	<0.001	<0.0005	<0.0005
Iron	mg/L	0.01	-	<0.05	<0.02	<0.02	<0.03	<0.03	<0.03	<0.03	<0.03
Lead	mg/L	0.00005	Variable ^e	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.00005	<0.00005
Magnesium	mg/L	0.005	-	2.09	9.19	11.0	3	9	10	9.47	13.6
Manganese	mg/L	0.0001	-	0.0013	<0.0007	<0.0007	<0.01	<0.01	<0.01	0.000135	<0.00005
Mercury	mg/L	0.000005	-	-	-	-	-	-	-	<0.00001	<0.00001
Molybdenum	mg/L	0.00005	-	<0.0003	<0.0003	<0.0003	<0.005	<0.005	<0.005	0.000068	0.000107
Nickel	mg/L	0.0005	-	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.0005	<0.0005
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.26	0.28	0.26	0.20	0.27	0.28	0.357	0.356
Selenium	mg/L	0.000050	-	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001
Silver	mg/L	0.00001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.000001	<0.000001
Sodium	mg/L	0.05	-	0.30	0.28	0.34	0.30	0.30	0.46	0.696	1.01
Strontium	mg/L	0.0002	0.25	0.0099	0.0247	0.0281	0.012	0.028	0.030	0.026	0.0365
Thallium	mg/L	0.000010	-	<0.0002	<0.0002	<0.0002	-	-	-	<0.0001	<0.0001
Tin	mg/L	0.00010	-	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01	<0.0001	<0.0001
Uranium	mg/L	0.000010	-	-	-	-	-	-	-	0.000296	0.000531
Vanadium	mg/L	0.00050	-	<0.0009	0.0043	0.0042	<0.001	<0.001	0.002	<0.001	<0.001
Zinc	mg/L	0.0010	Variable ^e	<0.001	0.001	0.002	<0.01	<0.01	<0.01	<0.003	<0.003
Miscellaneous (Water)											
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date												
				2015		2016				2017		2018				
				12-Aug-15 US	12-Aug-15 DS	30-Jun-16 DS	30-Jun-16 US	25-Aug-16 DS	25-Aug-16 US	29-Jun-17 US	29-Jun-17 DS	03-Jul-18 US	03-Jul-18 DS	02-Sep-18 US	02-Sep-18 US Duplicate	02-Sep-18 DS
In Situ Parameters																
Temperature	°C	-	-	9.6	9.3	8.16	9.36	9.8	10	3.8	4.4	5.2	5.5	6.0	6.0	5.6
Specific Conductance	µS/cm	-	-	0.314	0.315	7.264	7.264	0.299	0.297	0.154	0.123	0.1668	0.1668	0.237	0.2367	0.2371
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	102.7	102.3	100.4	100.1	102.5	103.8	102.20	102.80	97.70	97.60	99.30	99.30	96.30
pH	pH units	-	6.5 - 9.0	8.53	8.48	7.81	7.93	8.24	8.25	7.65	7.87	8.19	8.18	8.39	8.39	8.3
Wetted Width	m	-	-	3	3	-	-	-	-	11	10	12.4	12.7	4.5	4.5	4.3
Average Depth	m	-	-	0.1	0.1	-	-	-	-	2	0.19	0.1	0.12	0.08	0.08	0.12
Flow Rate	m³/s	-	-	-	-	-	-	-	-	2.90	2.78	1.11	0.75	0.10	0.10	0.08
Physical Parameters																
pH	pH units	0.1	6.5 - 9.0	8.16	8.32	8.09	8.09	8.42	8.42	7.93	7.91	8.18	8.17	8.42	8.37	8.41
Conductivity	µS/cm	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	0.1	-	1.45	0.24	0.26	0.17	0.13	0.14	0.5	0.37	0.29	0.56	<0.10	<0.10	<0.10
Hardness	mg/L as CaCO₃	-	-	156	152	60	59	165	163	46	44	91	90	146	150	147
Total Suspended Solids	mg/L	1	Variable ^g	2.4	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids	mg/L	18 - 20	-	159 *	143 *	65	70	152	148	50	56	102	101	140	155	155
Dissolved Anions																
Alkalinity	mg/L as CaCO₃	2.0	-	158	152	61	64	161	158	41	43	85	82	149	146	149
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	3.08	0.79	<0.50	<0.50	1.19	1.19	<0.50	<0.50	0.69	0.7	0.98	0.99	1.16
Fluoride	mg/L	-	-	-	-	<0.020	<0.020	0.023	0.024	<0.020	<0.020	0.023	0.023	0.037	0.038	0.037
Sulfate	mg/L	-	-	3.84	2.68	<0.30	0.31	3.37	3.35	<0.30	<0.30	0.62	0.62	2.02	2.02	2.03
Nutrients																
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	0.24	0.25	<0.15	<0.15	<0.15	<0.15	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	mg/L N	0.02	3.0	0.030	0.026	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.050	<0.050	0.021	<0.020	0.027	0.041	<0.020	<0.020	<0.020	<0.020	-	-	-
Total Phosphorus	mg/L	0.002	0.01	0.0044	<0.0030	0.0193	0.0282	0.01	0.0139	0.0085	0.0304	<0.0030	<0.0030	0.015	<0.0030	<0.0030
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds																
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	2.4	1.9	1	<1.0	1.5	1.5	1.75	1.78	1.75	1.74	1.72	1.86	1.72
Total Organic Carbon	mg/L	0.5	-	2.2	1.8	1.1	1.0	1.6	1.6	2.24	2.13	2.13	1.76	2.01	2.45	2.62
Total Kjeldahl Nitrogen	mg/L	-	-	0.24	0.25	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.18	<0.15
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date												
				2015		2016				2017		2018				
				12-Aug-15	12-Aug-15	30-Jun-16	30-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17	03-Jul-18	03-Jul-18	02-Sep-18	02-Sep-18	02-Sep-18
				US	DS	DS	US	DS	US	US	DS	US	DS	US	US Duplicate	DS
Total Metals and Non-Metals																
Aluminum	mg/L	0.003	Variable ^f	0.059	0.016	0.011	0.016	<0.010	<0.010	0.0271	0.024	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Antimony	mg/L	0.0001	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	0.00011	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.0001	-	-	-	0.00166	0.0019	0.00389	0.00385	0.00131	0.00128	0.00202	0.00213	0.00349	0.00348	0.00351
Beryllium	mg/L	0.00002	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	45	43.1	17.4	16.8	45.9	45.6	12.6	12.1	26	25.3	41.4	42.3	41.1
Cesium	mg/L	0.00001	-			<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Iron	mg/L	0.01	0.300	0.053	<0.050	<0.050	<0.050	<0.050	<0.050	0.075	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.001	-	-	-	<0.0010	<0.0010	0.0015	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	0.005	-	14	11.7	3.94	4.03	12.2	11.9	3.44	3.4	6.38	6.53	10.3	10.8	10.7
Manganese	mg/L	0.0001	Variable ^c	0.000850	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00113	0.00096	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	0.073	<0.00050	<0.00050	<0.000050	<0.000050	0.000093	0.000091	<0.000050	<0.000050	<0.000050	<0.000050	0.000078	0.000075	0.000067
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.0010	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.508	0.355	0.21	0.216	0.344	0.355	0.24	0.245	0.227	0.234	0.301	0.299	0.304
Rubidium	mg/L	0.0002	-	-	-	<0.00020	0.00022	0.00032	0.00034	0.00021	0.00022	<0.00020	<0.00020	0.00022	0.00025	0.00026
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	-	-	0.368	0.385	0.789	0.749	0.3	0.29	0.44	0.45	0.65	0.64	0.65
Silver	mg/L	0.00001	0.25	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	1.71	0.61	<0.50	<0.50	0.72	0.7	<0.50	<0.50	0.338	0.34	0.584	0.58	0.581
Strontium	mg/L	0.0002	0.25	-	-	0.0123	0.0121	0.035	0.0337	0.0078	0.0079	0.0178	0.0179	0.0311	0.0315	0.0313
Sulfur	mg/L	0.5	-	-	-	<0.50	<0.50	1.52	1.46	<0.50	<0.50	<0.50	<0.50	1.05	1.03	1.02
Tellurium	mg/L	0.0002	-	-	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	-	-	0.0006	0.00083	<0.00030	0.00032	0.00091	0.00087	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungstun	mg/L	0.0001	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000577	0.000403	0.000072	0.000073	0.000468	0.000458	0.000047	0.000039	0.000181	0.000185	0.000432	0.000421	0.000421
Vanadium	mg/L	0.0005	0.12	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	-	-	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date												
				2015		2016				2017		2018				
				12-Aug-15	12-Aug-15	30-Jun-16	30-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17	03-Jul-18	03-Jul-18	02-Sep-18	02-Sep-18	02-Sep-18
				US	DS	DS	US	DS	US	US	DS	US	DS	US	US Duplicate	DS
Dissolved Metals and Non-Metals																
Aluminum	mg/L	0.0010	-	<0.0050	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	-	-	-	-	-	-	-	-	-	-	-
Barium	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/L	0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/L	0.0000050	-	<0.000010	<0.000010	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	0.050	-	41.3	42.8	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/L	0.0002	-	0.00034	0.00024	-	-	-	-	-	-	-	-	-	-	-
Iron	mg/L	0.01	-	<0.010	<0.010	-	-	-	-	-	-	-	-	-	-	-
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.005	-	12.8	10.9	-	-	-	-	-	-	-	-	-	-	-
Manganese	mg/L	0.0001	-	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/L	0.000005	-	<0.000010	<0.000010	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	mg/L	0.00005	-	0.000125	0.000086	-	-	-	-	-	-	-	-	-	-	-
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-	-	-
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.488	0.361	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.00001	-	1.61	0.61	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	mg/L	0.0002	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	mg/L	0.000010	-	0.000549	0.000409	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/L	0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/L	0.0010	Variable ^e	<0.0010	0.0026	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous (Water)																
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2019				2020						
				22-Jun-19 US	22-Jun-19 DS	11-Aug-19 US	11-Aug-19 DS	22-Jun-20 US	22-Jun-20 DS	20-Jul-20 US	20-Jul-20 DS	20-Jul-20 DS01	14-Aug-20 US	14-Aug-20 DS
In Situ Parameters														
Temperature	°C	-	-	4.3	3.9	13.6	13.6	1.9	1.9	15.6	15.2	15.2	8.5	8.3
Specific Conductance	µS/cm	-	-	0.1616	0.1619	0.3037	0.3044	0.0960	0.0966	0.257	0.2582	0.2582	0.3185	0.3189
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	13.57	13.63	9.93	9.0	9.0	100.4	99.6
Dissolved Oxygen	%	-	-	99.30	98.60	98.7	99.8	13.57	98.10	99.4	98.50	98.50	11.75	11.72
pH	pH units	-	6.5 - 9.0	8.22	8.23	8.26	8.36	7.98	7.97	8.39	8.4	8.4	8.45	8.39
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters														
pH	pH units	0.1	6.5 - 9.0	8.24	8.22	8.39	8.46	7.84	7.81	8.38	8.36	8.37	8.49	8.46
Conductivity	µS/cm	1	-	-	-	-	-	99.4	100	266	268	268	326	329
Turbidity	NTU	0.1	-	0.13	0.14	0.15	0.21	0.36	0.45	<0.10	<0.10	<0.10	<0.10	<0.10
Hardness	mg/L as CaCO₃	-	-	106	105	153	156	53	53.3	143	143	143	183	181
Total Suspended Solids	mg/L	1	Variable ⁸	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids	mg/L	18 - 20	-	99	103	163	166	55	53	138	154	152	194	183
Dissolved Anions														
Alkalinity	mg/L as CaCO₃	2.0	-	103	104	166	171	50	50	142	143	143	170	168
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	0.59	0.64	1.21	1.41	<0.50	0.61	1.44	1.8	1.52	2.57	2.79
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients														
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0010	<0.0010
Nitrate	mg/L N	0.02	3.0	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.027	0.041	<0.020	0.0362	0.0371
Nitrate + Nitrite	mg/L N	-	-	<0.022	<0.022	<0.022	<0.022	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.010	<0.010	0.014	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.0050
Total Phosphorus	mg/L	0.002	0.01	<0.0030	<0.0030	0.012	<0.0030	0.0132	0.0034	<0.0030	<0.0030	<0.0030	<0.0020	<0.0020
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds														
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	1.73	1.81	1.62	1.7	2.93	2.83	2.47	2.28	2.11	1.92	2
Total Organic Carbon	mg/L	0.5	-	2.34	2.54	3.39	2.23	3.04	3.24	2.74	2.77	2.67	1.55	1.81
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2019				2020						
				22-Jun-19	22-Jun-19	11-Aug-19	11-Aug-19	22-Jun-20	22-Jun-20	20-Jul-20	20-Jul-20	20-Jul-20	14-Aug-20	14-Aug-20
				US	DS	US	DS	US	DS	US	DS	DS01	US	DS
Total Metals and Non-Metals														
Aluminum	mg/L	0.003	Variable ^f	0.009	0.0097	0.0053	0.0074	0.0164	0.0277	<0.0050	0.0067	0.0054	<0.0030	0.0033
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	0.00012	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	0.00013
Barium	mg/L	0.0001	-	0.00236	0.00260	0.00459	0.0045	0.00153	0.00216	0.00383	0.00418	0.0039	0.00428	0.00442
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	0.011	0.011	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000075	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	30.4	29.1	44.1	42.8	15.2	14.3	41	40	40.5	48	49.5
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00010	<0.00010
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	0.00097	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron	mg/L	0.01	0.300	<0.010	<0.010	<0.010	<0.010	0.017	0.034	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.000050	<0.000050	<0.000050	<0.000050	0.000051	0.000085	<0.000050	0.000051	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.001	-	0.001	<0.0010	0.0012	0.0012	<0.0010	<0.0010	0.0015	0.0014	0.0014	0.0017	0.0017
Magnesium	mg/L	0.005	-	7.61	7.79	11.5	11.2	3.6	3.45	9.96	10	10.3	13.7	13.7
Manganese	mg/L	0.0001	Variable ^c	<0.00050	<0.00050	<0.00050	<0.00050	0.00098	0.00192	<0.00050	<0.00050	<0.00050	<0.00010	0.00016
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	0.073	<0.000050	<0.000050	0.000105	0.000091	<0.000050	<0.000050	0.000069	0.000068	0.000071	0.000093	0.000098
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00070	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.252	0.262	0.365	0.368	0.229	0.338	0.366	0.389	0.387	0.346	0.351
Rubidium	mg/L	0.0002	-	0.00021	0.00023	0.00035	0.00042	<0.00020	0.00034	0.00035	0.00043	0.00043	0.00029	0.00031
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.52	0.52	0.68	0.65	0.28	0.3	0.88	0.88	0.88	0.88	0.87
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010
Sodium	mg/L	0.05	-	0.355	0.356	0.67	0.661	0.275	0.437	0.795	0.812	0.813	1.19	1.18
Strontium	mg/L	0.0002	0.25	0.0207	0.0214	0.0367	0.0361	0.0102	0.0097	0.0307	0.0309	0.0314	0.0407	0.0413
Sulfur	mg/L	0.5	-	<0.50	0.53	2.67	1.23	<0.50	<0.50	1.16	1.27	1.29	2.29	2.23
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	0.00049	<0.00030	<0.00030	0.00038	0.00053	0.00093	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungstun	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000200	0.000223	0.000521	0.00049	0.000062	0.000079	0.000333	0.000369	0.000369	0.00056	0.000577
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.01	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date											
				2019				2020							
				22-Jun-19	22-Jun-19	11-Aug-19	11-Aug-19	22-Jun-20	22-Jun-20	20-Jul-20	20-Jul-20	20-Jul-20	14-Aug-20	14-Aug-20	
				US	DS	US	DS	US	DS	US	DS	DS01	US	DS	
Dissolved Metals and Non-Metals															
Aluminum	mg/L	0.0010	-	-	-	-	-	0.00830	0.0065	0.0089	<0.0050	<0.0050	0.0011	<0.0010	
Arsenic	mg/L	0.00010	-	-	-	-	-	<0.00010	<0.00010	0.00011	0	<0.00010	<0.00010	<0.00010	
Barium	mg/L	0.00010	-	-	-	-	-	0.00151	0.00152	0.00415	0	0.00423	0.00436	0.00419	
Boron	mg/L	0.010	-	-	-	-	-	<0.010	<0.010	0.011	0	0.012	<0.010	<0.010	
Cadmium	mg/L	0.0000050	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Calcium	mg/L	0.050	-	-	-	-	-	15.10000	15	40	40	40.1	50.4	50.8	
Chromium	mg/L	0.0005	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00010	<0.00010	
Cobalt	mg/L	0.0001	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Copper	mg/L	0.0002	-	-	-	-	-	0.00031	0.00033	0.0003	0	0.00025	0.0003	0.00027	
Iron	mg/L	0.01	-	-	-	-	-	0.01100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Lead	mg/L	0.00005	Variable ^e	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Magnesium	mg/L	0.005	-	-	-	-	-	3.73000	3.84	10.4	10	10.5	13.9	13.2	
Manganese	mg/L	0.0001	-	-	-	-	-	0.00092	0.00077	<0.00050	<0.00050	<0.00050	<0.00010	<0.00010	
Mercury	mg/L	0.000005	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum	mg/L	0.00005	-	-	-	-	-	<0.000050	<0.000050	0.000074	0	0.000074	0.000095	0.000112	
Nickel	mg/L	0.0005	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	mg/L	0.05	-	-	-	-	-	0.22600	0.227	0.404	0	0.401	0.494	0.422	
Selenium	mg/L	0.000050	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Silver	mg/L	0.00001	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	
Sodium	mg/L	0.05	-	-	-	-	-	0.28600	0.286	0.851	1	0.806	1.23	1.18	
Strontium	mg/L	0.0002	0.25	-	-	-	-	0.00960	0.0097	0.0328	0	0.0332	0.0381	0.0385	
Thallium	mg/L	0.000010	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Tin	mg/L	0.00010	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium	mg/L	0.000010	-	-	-	-	-	0.00006	0.000061	0.000331	0	0.000369	0.000537	0.000548	
Vanadium	mg/L	0.00050	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Zinc	mg/L	0.0010	Variable ^e	-	-	-	-	0.00250	0.0029	0.0028	0	0.0016	0.0011	0.0018	
Miscellaneous (Water)															
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-	

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date								
				2021				2022				
				14-Jun-21	14-Jun-21	16-Aug-21	16-Aug-21	20-Jun-22	20-Jun-22	20-Jun-22	29-Aug-22	29-Aug-22
				DS	US	DS	US	DS	US	DS Travel Blank	DS	US
In Situ Parameters												
Temperature	°C	-	-	1.2	1.0	7.3	7.3	1.7	0.7	-	6.9	6.9
Specific Conductance	µS/cm	-	-	72.4	72	274.5	274.1	70.8	67.5	-	317	326.5
Dissolved Oxygen	mg/L	-	<9.5	13.34	14.18	11.83	11.80	13.58	13.66	-	13.50	13.24
Dissolved Oxygen	%	-	-	99.6	99.8	100.8	100.6	97.3	95.1	-	112.8	110.6
pH	pH units	-	6.5 - 9.0	7.69	7.72	8.48	8.43	7.83	7.76	-	8.31	8.33
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters												
pH	pH units	0.1	6.5 - 9.0	7.79	7.79	8.28	8.29	7.75	7.75	7.80	8.42	8.39
Conductivity	µS/cm	1	-	78.4	77.3	286	286	71.6	70.2	<1.0	317	316
Turbidity	NTU	0.1	-	4.18	2.24	<0.10	0.23	2.55	2.20	<0.10	<1.0	<1.0
Hardness	mg/L as CaCO₃	-	-	37.7	37.3	155	154	36	34.6	<0.50	178	178
Total Suspended Solids	mg/L	1	Variable [®]	12.8	8.1	<1.0	<1.0	2.5	3.8	<2.0	<3.0	<3.0
Total Dissolved Solids	mg/L	18 - 20	-	46	49	147	152	51	55	29	168	169
Dissolved Anions												
Alkalinity	mg/L as CaCO₃	2.0	-	49.6	53.1	154	154	38.8	37.5	<1.0	161.0	162.0
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	0.98	0.86	1.87	1.90	0.74	0.66	<0.50	1.89	1.73
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-
Nutrients												
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate	mg/L N	0.02	3.0	<0.020	<0.020	<0.020	<0.020	0.023	0.021	<0.020	0.046	0.043
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	<0.010	<0.010
Total Phosphorus	mg/L	0.002	0.01	0.0096	0.0085	<0.0030	<0.0030	0.0034	0.0138	<0.0030	<0.0030	<0.0030
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050
Organic Compounds												
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	3.08	3.08	3.12	3.15	2.44	2.13	<0.50	2.31	1.80
Total Organic Carbon	mg/L	0.5	-	3.08	3.09	5.34	5.22	2.19	2.11	<0.50	1.93	1.88
Total Kjeldahl Nitrogen	mg/L	-	-	0.190	0.180	0.150	0.190	0.160	0.186	<0.050	0.060	0.070
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-	-	-

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2021				2022					
				14-Jun-21	14-Jun-21	16-Aug-21	16-Aug-21	20-Jun-22	20-Jun-22	20-Jun-22	29-Aug-22	29-Aug-22	
				DS	US	DS	US	DS	US	DS Travel Blank	DS	US	
Total Metals and Non-Metals													
Aluminum	mg/L	0.003	Variable ^f	0.0752	0.0329	<0.0050	<0.0050	0.1210	0.0688	<0.0050	<0.0050	<0.0050	
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Barium	mg/L	0.0001	-	0.00175	0.00129	0.00389	0.00388	0.00174	0.00118	<0.00010	0.00418	0.00398	
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Calcium	mg/L	0.05	-	11.8	11.2	39.9	40.1	12.3	11.4	<0.050	46.3	47.2	
Cesium	mg/L	0.00001	-	0.000010	<0.000010	<0.000010	<0.000010	0.000024	0.000011	<0.000010	<0.000010	<0.000010	
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Iron	mg/L	0.01	0.300	0.069	0.033	<0.010	<0.010	0.119	0.065	<0.010	<0.010	<0.010	
Lead	mg/L	0.00005	0.001 - 0.007 ^c	0.000075	<0.000050	<0.000050	<0.000050	0.000124	0.000061	<0.000050	<0.000050	<0.000050	
Lithium	mg/L	0.001	-	<0.0010	<0.0010	0.0011	0.0012	<0.0010	<0.0010	<0.0010	0.0014	0.0015	
Magnesium	mg/L	0.005	-	2.81	2.68	12.4	12.4	2.27	2.18	<0.0050	14.40	14.60	
Manganese	mg/L	0.0001	Variable ^c	0.00375	0.00295	<0.00050	<0.00050	0.00525	0.00462	<0.00050	<0.00050	<0.00050	
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum	mg/L	0.00005	0.073	<0.000050	<0.000050	0.000071	0.000066	<0.000050	<0.000050	<0.000050	0.000112	0.000104	
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Potassium	mg/L	0.05	-	0.308	0.275	0.382	0.380	0.315	0.280	<0.050	0.372	0.370	
Rubidium	mg/L	0.0002	-	0.00048	0.00027	0.00036	0.00031	0.00062	0.00041	<0.00020	0.00034	0.00026	
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Silicon	mg/L	0.1	-	0.36	0.28	1.00	1.01	0.39	0.29	<0.10	0.79	0.82	
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Sodium	mg/L	0.05	-	0.351	0.360	0.986	0.995	0.304	0.298	<0.050	1.08	1.09	
Strontium	mg/L	0.0002	0.25	0.0093	0.0085	0.0302	0.0300	0.0099	0.0090	<0.0010	0.0387	0.0370	
Sulfur	mg/L	0.5	-	<0.50	<0.50	1.19	1.18	<0.50	<0.50	<0.50	2.23	2.08	
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin	mg/L	0.0001	-	<0.00010	0.00013	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium	mg/L	0.0003	-	0.00241	0.00099	<0.00030	<0.00030	0.00417	0.00186	<0.00030	<0.00030	<0.00030	
Tungstun	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium	mg/L	0.00001	0.015	0.000080	0.000045	0.000495	0.000479	0.000099	0.000044	<0.000010	0.000561	0.000552	
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date								
				2021				2022				
				14-Jun-21	14-Jun-21	16-Aug-21	16-Aug-21	20-Jun-22	20-Jun-22	20-Jun-22	29-Aug-22	29-Aug-22
				DS	US	DS	US	DS	US	DS Travel Blank	DS	US
Dissolved Metals and Non-Metals												
Aluminum	mg/L	0.0010	-	0.0077	0.0074	<0.0050	<0.0050	0.0084	0.0087	<0.0050	<0.0050	<0.0050
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.00010	-	0.00140	0.00114	0.00411	0.00421	0.00116	0.00105	0.00017	0.0041	0.0041
Boron	mg/L	0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.050	-	10.9	10.7	40.7	40.5	11.50000	10.90000	<0.050	47.30000	47.10000
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0002	-	<0.00020	<0.00020	0.00026	0.00026	<0.00020	<0.00020	<0.00020	0.00	0.000240
Iron	mg/L	0.01	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	0.005	-	2.57	2.60	12.8	12.8	1.790000	1.760000	<0.0050	14.600000	14.600000
Manganese	mg/L	0.0001	-	0.00442	0.00450	<0.00050	<0.00050	0.00247	0.00297	<0.00050	<0.00050	<0.00050
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	-	<0.000050	<0.000050	0.000066	0.000072	<0.000050	<0.000050	<0.000050	0.000101	0.000108
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.260	0.254	0.411	0.404	0.264	0.250	<0.050	0.37900	0.37700
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silver	mg/L	0.00001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	0.339	0.342	1.03	1.02	0.314	0.305	<0.050	1.08	1.0700
Strontium	mg/L	0.0002	0.25	0.0084	0.0080	0.0306	0.0312	0.009800	0.008900	<0.0010	0.03760	0.03920
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.000010	-	0.000065	0.000037	0.000466	0.000456	0.000058	0.000032	<0.000010	0.000551	0.000526
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.0010	Variable ^e	<0.0010	<0.0010	<0.0010	<0.0010	0.0031	<0.0010	0.0025	0.0020	<0.0010
Miscellaneous (Water)												
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	<0.0020	<0.0020

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date											
				2023							2024				
				25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	21-Aug-23	21-Aug-23	21-Aug-23	23-Jul-24	23-Jul-24	18-Aug-24	18-Aug-24	
				DS	US	DS	US	DS	US	US Travel Blank	DS	US	DS	US	
In Situ Parameters															
Temperature	°C	-	-	0.9	0.3	9.7	9.5	6.3	6.3	-		5.6	4.6	6.1	6
Specific Conductance	µS/cm	-	-	55.1	54	159	157.4	267.3	264.5	-		73.9	74.2	276.1	274
Dissolved Oxygen	mg/L	-	<9.5	13.02	12.73	11.16	11.14	11.70	11.65	-		12.78	12.67	11.68	11.75
Dissolved Oxygen	%	-	-	94.8	91.2	100.8	100.5	97.7	98.2	-		102.0	99.0	94.2	94.5
pH	pH units	-	6.5 - 9.0	7.96	7.84	8.10	8.13	8.37	8.39	-		7.92	7.80	8.23	8.3
Wetted Width	m	-	-	-	-	-	-	-	-	-		-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-		-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-		-	-	-	-
Physical Parameters															
pH	pH units	0.1	6.5 - 9.0	7.59	7.39	8.09	8.05	8.46	8.38	6.27		7.91	7.76	8.29	8.28
Conductivity	µS/cm	1	-	58.5	57.3	167	165	273	272	1.1		79.2	79.0	294	294
Turbidity	NTU	0.1	-	1.68	0.61	0.29	1.29	0.27	<0.10	<0.10		0.59	0.51	< 0.10	0.24
Hardness	mg/L as CaCO₃	-	-	28.86	27.51	84.64	83.85	145.55	142.72	<0.50		41.6	41.9	157	158
Total Suspended Solids	mg/L	1	Variable ^g	7.6	2.5	<1.0	<1.2	<1.0	<1.0	<1.0		< 1.0	1.0	< 1.0	< 1.0
Total Dissolved Solids	mg/L	18 - 20	-	27	28	91	86	132	136	<10		49	50	164	164
Dissolved Anions															
Alkalinity	mg/L as CaCO₃	2.0	-	35.2	48.8	88.5	87.2	141	142	<2.0		39.4	39.7	154	154
Bromide	mg/L	-	-	-	-	-	-	-	-	-		-	-	-	-
Chloride	mg/L	0.5	120	<0.50	<0.50	0.76	0.74	1.86	1.63	<0.50		< 0.50	< 0.50	1.62	1.15
Fluoride	mg/L	-	-	-	-	-	-	-	-	-		-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-		-	-	-	-
Nutrients															
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-		-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010		< 0.010	< 0.010	< 0.010	< 0.010
Nitrate	mg/L N	0.02	3.0	0.035	0.044	<0.020	<0.020	<0.020	<0.020	<0.020		< 0.020	< 0.020	< 0.020	< 0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-		-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.0050	0.0064	<0.0050	0.0073	0.0057	<0.0050	<0.0050		< 0.0050	0.0095	< 0.0050	< 0.0050
Total Phosphorus	mg/L	0.002	0.01	0.0035	0.0038	0.0022	0.0025	0.0033	<0.0020	<0.0020		0.0054	0.0049	< 0.0020	< 0.0020
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-		-	-	-	-
Organic Compounds															
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-		-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	2.89	1.83	1.36	1.29	2.25	2.20	<0.50		2.56	2.37	2.84	2.12
Total Organic Carbon	mg/L	0.5	-	1.81	2.08	1.85	1.82	2.68	2.48	<0.50		2.02	2.25	1.89	1.87
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	-		-	-	-	-
Chlorophyll-a	mg/m3	-	-	-	-	-	-	-	-	-		-	-	-	-
Pheophytin-a	mg/m3	-	-	-	-	-	-	-	-	-		-	-	-	-

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2023							2024			
				25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	21-Aug-23	21-Aug-23	21-Aug-23	23-Jul-24	23-Jul-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	US Travel Blank	DS	US	DS	US
Total Metals and Non-Metals														
Aluminum	mg/L	0.003	Variable ^f	0.0617	0.0336	0.0055	0.0061	0.0047	0.0045	<0.0030	0.0202	0.0197	0.0037	< 0.0030
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Barium	mg/L	0.0001	-	0.00128	0.00085	0.00224	0.00220	0.00353	0.00338	<0.00010	0.00128	0.00133	0.00404	0.00382
Beryllium	mg/L	0.00002	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Calcium	mg/L	0.05	-	9.40	9.06	23.1	22.8	38.1	37.9	<0.050	12.4	12.1	43.2	43.0
Cesium	mg/L	0.00001	-	0.000012	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	0.00065	0.00073
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.00050	<0.00050	0.00058	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Iron	mg/L	0.01	0.300	0.062	0.036	<0.010	<0.010	<0.010	<0.010	<0.010	0.021	0.022	< 0.010	< 0.010
Lead	mg/L	0.00005	0.001 - 0.007 ^c	0.000078	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Lithium	mg/L	0.001	-	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	0.0010	<0.0010	< 0.0010	< 0.0010	0.0013	0.0013
Magnesium	mg/L	0.005	-	1.69	1.65	6.50	6.39	11.6	11.9	<0.0050	2.91	2.97	12.6	12.5
Manganese	mg/L	0.0001	Variable ^c	0.00308	0.00303	0.00018	0.00021	0.00025	0.00020	<0.00010	0.00175	0.00167	0.00016	< 0.00010
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Molybdenum	mg/L	0.00005	0.073	<0.000050	<0.000050	<0.000050	<0.000050	0.000056	0.000063	<0.000050	< 0.000050	< 0.000050	0.000101	0.000098
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	0.00054	< 0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	mg/L	0.05	-	0.214	0.203	0.240	0.240	0.308	0.308	<0.050	0.228	0.238	0.373	0.339
Rubidium	mg/L	0.0002	-	0.00037	0.00031	0.00023	<0.00020	0.00029	0.00027	<0.00020	0.00023	0.00023	0.00032	0.00025
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Silicon	mg/L	0.1	-	0.26	0.20	0.55	0.55	1.06	1.07	<0.10	0.27	0.28	0.80	0.80
Silver	mg/L	0.00001	0.25	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Sodium	mg/L	0.05	-	0.199	0.196	0.365	0.364	0.856	0.861	<0.050	0.207	0.233	0.809	0.794
Strontium	mg/L	0.0002	0.25	0.00645	0.00608	0.0150	0.0152	0.0292	0.0292	<0.00020	0.00822	0.00850	0.0343	0.0337
Sulfur	mg/L	0.5	-	<0.50	<0.50	<0.50	<0.50	1.16	1.04	<0.50	< 0.50	< 0.50	1.10	1.01
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Titanium	mg/L	0.0003	-	0.00248	0.00121	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00079	0.00079	< 0.00030	< 0.00030
Tungstun	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Uranium	mg/L	0.00001	0.015	0.000069	0.000031	0.000166	0.000163	0.000422	0.000421	<0.000010	0.000040	0.000041	0.000492	0.000461
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020

Table 2.4 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-060 (CV078)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2023						2024				
				25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	21-Aug-23	21-Aug-23	21-Aug-23	23-Jul-24	23-Jul-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	US Travel Blank	DS	US	DS	US
Dissolved Metals and Non-Metals														
Aluminum	mg/L	0.0010	-	0.0090	0.0038	0.0019	0.0016	0.0018	0.0012	<0.0010	0.0033	0.0047	0.0026	< 0.0010
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Barium	mg/L	0.00010	-	0.00102	0.00070	0.00236	0.00225	0.00351	0.00349	<0.00010	0.00112	0.00111	0.00381	0.00355
Boron	mg/L	0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Calcium	mg/L	0.050	-	9.02	8.63	23.2	23.0	37.8	37.5	<0.050	11.8	12.1	42.6	42.1
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Copper	mg/L	0.0002	-	<0.00020	<0.00020	0.00024	0.00020	0.00030	0.00027	<0.00020	< 0.00020	< 0.00020	0.00031	0.00027
Iron	mg/L	0.01	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Magnesium	mg/L	0.005	-	1.52	1.43	6.42	6.35	12.3	11.8	<0.0050	2.94	2.84	12.4	12.9
Manganese	mg/L	0.0001	-	0.00176	0.00150	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00102	0.00117	< 0.00010	< 0.00010
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Molybdenum	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	0.000061	0.000057	<0.000050	< 0.000050	< 0.000050	0.000090	0.000091
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	mg/L	0.05	-	0.209	0.180	0.279	0.276	0.304	0.295	<0.050	0.220	0.221	0.345	0.323
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Silver	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Sodium	mg/L	0.05	-	0.225	0.184	0.398	0.388	0.856	0.830	<0.050	0.202	0.206	0.781	0.785
Strontium	mg/L	0.0002	0.25	0.00638	0.00586	0.0162	0.0164	0.0295	0.0292	<0.00020	0.00802	0.00818	0.0354	0.0345
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Uranium	mg/L	0.000010	-	0.000069	0.000026	0.000164	0.000158	0.000405	0.000392	<0.000010	0.000036	0.000036	0.000463	0.000442
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Zinc	mg/L	0.0010	Variable ^e	<0.0010	<0.0010	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	< 0.0010	< 0.0010	0.0011	< 0.0010
Miscellaneous (Water)														
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date					
				2005			2006		
				07-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	02-Aug-06	08-Sep-06
In Situ Parameters									
Temperature	°C	-	-	0.26	9.75	6.05	-0.05	13.74	6.53
Specific Conductance	µS/cm	-	-	0.067	0.139	0.145	0.112	0.137	0.152
Dissolved Oxygen	mg/L	-	<9.5	13.06	10.71	11.89	13.58	10.32	-
Dissolved Oxygen	%	-	-	-	-	-	-	-	-
pH	pH units	-	6.5 - 9.0	7.58	8.03	7.70	8.02	8.1	8.16
Wetted Width	m	-	-	-	-	-	52	42	38
Average Depth	m	-	-	-	-	-	-	0.3	0.3
	m³/s	-	-	-	-	-	-	4.09	-
Physical Parameters									
pH	pH units	0.1	6.5 - 9.0	-	-	-	7.7	7.61	7.64
Conductivity	µS/cm	1	-	72	149	143	124	140	171
Turbidity	NTU	0.1	-	0.33	0.25	0.16	0.5	0.3	-
Hardness	mg/L as CaCO₃	-	-	32.4	79.5	82.0	61	75	80
Total Suspended Solids	mg/L	1	Variable ^g	-	-	-	-	-	-
Total Dissolved Solids	mg/L	17 - 20	-	54	74	86	81	91	111
Dissolved Anions									
Alkalinity	mg/L as CaCO₃	2.0	-	33	74	71	62	74	87
Bromide	mg/L	-	-	<0.3	<0.3	<0.3	<0.05	<0.05	<0.05
Chloride	mg/L	0.5	120	0.9	0.8	0.9	<1	<1	2
Fluoride	mg/L	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	0.7	0.5	0.6	2	<1	3
Nutrients									
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	0.20	0.10	<0.10	0.04	0.11	<0.02
Nitrite	mg/L N	0.01	0.060	<0.06	<0.06	<0.06	<0.005	<0.005	0.013
Nitrate	mg/L N	0.02	3.0	0.06	<0.05	<0.05	<0.10	<0.10	<0.10
Nitrate + Nitrite	mg/L N	-	-	0.06	<0.06	<0.06	<0.10	<0.10	<0.10
Ammonia, total as N	mg/L	0.005	Variable ^a	-	-	-	-	-	-
Total Phosphorus	mg/L	0.002	0.01	<0.02	<0.02	<0.10	<0.01	<0.01	<0.01
Dissolved Phosphorus	mg/L	-	-	<0.02	<0.02	<0.10	-	-	-
Organic Compounds									
Phenols	mg/L	-	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Carbon	mg/L	0.5	-	-	-	-	-	-	-
Total Organic Carbon	mg/L	0.5	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m₃	-	-						

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date					
				2005			2006		
				07-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	02-Aug-06	08-Sep-06
Total Metals and Non-Metals									
Aluminum	mg/L	0.003	Variable ^f	0.008	<0.004	<0.004	<0.005	<0.005	0.006
Antimony	mg/L	0.0001	-	<0.0004	<0.0004	<0.0004	-	-	-
Arsenic	mg/L	0.0001	0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001
Barium	mg/L	0.0001	-	0.001	0.004	0.004	<0.01	<0.01	<0.01
Beryllium	mg/L	0.00002	-	<0.005	<0.005	<0.005	-	-	-
Bismuth	mg/L	0.00005	-	<0.0003	<0.0003	<0.0003	-	-	-
Boron	mg/L	0.01	1.5	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	0.000005	Variable ^c	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	mg/L	0.05	-	8.86	18.3	18.5	14	17	19
Cesium	mg/L	0.00001	-	-	-	-	-	-	-
Chromium	mg/L	0.0005	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	0.0001	Variable ^c	<0.0003	<0.0003	<0.0003	<0.0002	<0.0002	<0.0002
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0008	0.0009	<0.0008	<0.001	<0.001	<0.001
Iron	mg/L	0.01	0.300	<0.02	<0.02	<0.02	<0.03	<0.03	<0.03
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001
Lithium	mg/L	0.001	-	-	-	-	-	-	-
Magnesium	mg/L	0.005	-	2.49	8.23	8.71	7	8	8
Manganese	mg/L	0.0001	Variable ^c	0.0071	0.0010	0.0009	<0.01	<0.01	<0.01
Mercury	mg/L	0.000005	0.000026	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	mg/L	0.00005	0.073	<0.0003	<0.0003	<0.0003	<0.005	<0.005	<0.005
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.49	0.47	0.50	0.62	0.45	0.51
Rubidium	mg/L	0.0002	-	-	-	-	-	-	-
Selenium	mg/L	0.00005	0.001	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001
Silicon	mg/L	0.1	-	-	-	-	-	-	-
Silver	mg/L	0.00001	0.25	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	mg/L	0.05	-	0.30	0.52	0.54	0.5	0.53	0.94
Sulfur	mg/L	0.0002	0.25	-	-	-	-	-	-
Tellurium	mg/L	0.5	-	-	-	-	-	-	-
Strontium	mg/L	0.0002	-	0.0057	0.0094	0.0098	0.009	0.01	0.014
Thallium	mg/L	0.00001	0.0008	<0.0002	<0.0002	<0.0002	-	-	-
Thorium	mg/L	0.0001	-	-	-	-	-	-	-
Tin	mg/L	0.0001	-	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01
Titanium	mg/L	0.0003	-	<0.003	<0.003	<0.003	-	-	-
Tungsten	mg/L	0.0001	-	-	-	-	-	-	-
Uranium	mg/L	0.00001	0.015	-	-	-	-	-	-
Vanadium	mg/L	0.0005	0.12	<0.0009	<0.0009	<0.0009	<0.001	<0.001	<0.001
Zinc	mg/L	0.003	0.03	0.0010	<0.001	<0.001	<0.01	<0.01	<0.01
Zirconium	mg/L	0.0002	-	-	-	-	-	-	-

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date					
				2005			2006		
				07-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	02-Aug-06	08-Sep-06
Dissolved Metals and Non-Metals									
Aluminum	mg/L	0.0010	-	<0.004	<0.004	<0.004	<0.005	<0.005	<0.005
Arsenic	mg/L	0.00010	-	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001
Barium	mg/L	0.00010	-	0.001	0.004	0.004	<0.01	<0.01	<0.01
Boron	mg/L	0.010	-	<0.05	0.02	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	0.0000050	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	mg/L	0.050	-	9.62	18.3	17.2	13	17	19
Chromium	mg/L	0.0005	-	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	0.0001	-	<0.0003	<0.0003	<0.0003	<0.0002	<0.0002	<0.0002
Copper	mg/L	0.0002	-	<0.0008	<0.0008	<0.0008	<0.001	<0.001	<0.001
Iron	mg/L	0.01	-	<0.02	0.02	<0.02	<0.03	<0.03	<0.03
Lead	mg/L	0.00005	Variable ^e	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001
Magnesium	mg/L	0.005	-	2.67	8.24	7.80	7	8	8
Manganese	mg/L	0.0001	-	0.0068	<0.0007	<0.0007	<0.01	<0.01	<0.01
Mercury	mg/L	0.000005	-	-	-	-	-	-	-
Molybdenum	mg/L	0.00005	-	<0.0003	<0.0003	<0.0003	<0.005	<0.005	<0.005
Nickel	mg/L	0.0005	-	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.52	0.48	0.49	0.61	0.46	0.49
Selenium	mg/L	0.000050	-	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001
Silver	mg/L	0.00001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	mg/L	0.05	-	0.34	0.52	0.51	0.49	0.52	0.9
Strontium	mg/L	0.0002	0.25	0.0061	0.0100	0.0092	0.008	0.01	0.014
Thallium	mg/L	0.000010	-	<0.0002	<0.0002	<0.0002	-	-	-
Tin	mg/L	0.00010	-	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01
Uranium	mg/L	0.000010	-	-	-	-	-	-	-
Vanadium	mg/L	0.00050	-	<0.0009	0.0027	0.0022	<0.001	<0.001	<0.001
Zinc	mg/L	0.0010	Variable ^e	0.003	0.002	0.009	<0.01	<0.01	<0.01
Miscellaneous (Water)									
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2015				2016				2017	
				03-Jul-15	03-Jul-15	11-Aug-15	11-Aug-15	30-Jun-16	30-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17
				US	DS	US	DS	DS	US	DS	US	US	DS
In Situ Parameters													
Temperature	°C	-	-	-	-	11.4	11.3	10.4	7.2	11.5	11.3	5.9	8.5
Specific Conductance	µS/cm	-	-	0.130	0.084	0.183	0.180	6.109	6.213	0.175	0.175	0.126	0.171
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	-	-	101.5	101.9	98.5	99.4	101.4	100.5	102.4	111.7
pH	pH units	-	6.5 - 9.0	8.20	8.17	8.42	8.42	6.21	7.47	8.22	8.15	7.78	7.76
Wetted Width	m	-	-	-	-	6	6	-	-	-	-	5	10.6
Average Depth	m	-	-	-	-	0.2	0.2	-	-	-	-	2	0.19
	m³/s	-	-	-	-	-	-	-	-	-	-	3.8	1.06742
Physical Parameters													
pH	pH units	0.1	6.5 - 9.0	7.98	7.99	8.20	8.17	7.86	7.94	8.32	8.28	7.94	7.92
Conductivity	µS/cm	1	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	0.1	-	0.29	0.28	0.2	0.2	0.6	0.46	0.28	0.26	0.44	0.72
Hardness	mg/L as CaCO₃	-	-	63	62	80	81	48	48	85	93	55	55
Total Suspended Solids	mg/L	1	Variable ^g	<2.0	<2.0	<2.0	<2.0	<2.0	2	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids	mg/L	17 - 20	-	70	73	86 *	84 *	60	65	83	84	66	66
Dissolved Anions													
Alkalinity	mg/L as CaCO₃	2.0	-	63	63	82	80	47	50	84	89	51	50
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	1.29	1.30	2.06	2.20	1.26	1.26	1.89	1.88	1.29	1.3
Fluoride	mg/L	-	-	-	-	-	-	<0.020	<0.020	0.024	0.025	<0.020	<0.020
Sulfate	mg/L	-	-	0.82	1.03	1.55	2.28	0.65	0.62	1.25	1.21	0.64	0.61
Nutrients													
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	<0.15	<0.15	0.28	0.22	<0.15	<0.15	0.2	<0.15	-	-
Nitrite	mg/L N	0.01	0.060	-	-	-	-	-	-	-	-	-	-
Nitrate	mg/L N	0.02	3.0	<0.020	0.035	<0.020	0.052	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-					-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	-	-	-	-	<0.020	0.054	0.061	<0.020	<0.020	<0.020
Total Phosphorus	mg/L	0.002	0.01	0.0043	0.0058	0.0040	0.0038	0.0044	0.0032	0.0231	0.0088	0.0061	0.0066
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds													
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	2.1	2.1	2.5	2.6	2.1	1.9	2.1	2.3	2.24	2.14
Total Organic Carbon	mg/L	0.5	-	2.1	1.9	2.7	2.6	2.3	2.2	2.5	2.2	2.48	2.79
Total Kjeldahl Nitrogen	mg/L	-	-	<0.15	<0.15	0.28	0.22	<0.15	<0.15	0.2	<0.15	<0.15	<0.15
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2015				2016				2017	
				03-Jul-15	03-Jul-15	11-Aug-15	11-Aug-15	30-Jun-16	30-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17
				US	DS	US	DS	DS	US	DS	US	US	DS
Total Metals and Non-Metals													
Aluminum	mg/L	0.003	Variable ^f	<0.010	<0.010	<0.010	<0.010	0.018	0.014	<0.010	<0.010	0.0282	0.0269
Antimony	mg/L	0.0001	-	-	-			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.0010	<0.0010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.00012	<0.00010	<0.00010
Barium	mg/L	0.0001	-	-	-	-	-	0.00347	0.0034	0.00545	0.00569	0.00391	0.00394
Beryllium	mg/L	0.00002	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.000090	<0.000090	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Calcium	mg/L	0.05	-	14.1	13.9	20.2	19.2	10.5	10.6	19	21.2	12.3	12.5
Cesium	mg/L	0.00001	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	-	-	-	-	0.0008	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Iron	mg/L	0.01	0.300	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	<0.000050
Lithium	mg/L	0.001	-	-	-	-	-	<0.0010	<0.0010	0.0012	0.0013	<0.0010	<0.0010
Magnesium	mg/L	0.005	-	6.28	6.36	9.52	9.21	5.19	5.14	9.19	9.72	5.89	5.87
Manganese	mg/L	0.0001	Variable ^c	<0.0010	<0.0010	<0.00050	0.00118	0.00154	0.00144	0.00101	0.00106	0.00222	0.00208
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	0.073	<0.00050	<0.00050	<0.00050	<0.00050	0.000063	0.000054	0.000067	0.000065	0.000054	0.00006
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.0010	<0.0010	<0.0010	<0.0010	0.00071	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	<1.0	<1.0	0.669	0.665	0.482	0.475	0.639	0.68	0.557	0.563
Rubidium	mg/L	0.0002	-	-	-	-	-	0.00053	0.00051	0.00075	0.00073	0.00062	0.00058
Selenium	mg/L	0.00005	0.001	<0.00040	<0.00040	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	-	-	-	-	0.4	0.393	0.545	0.567	0.48	0.47
Silver	mg/L	0.00001	0.25	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	0.89	0.91	1.57	1.56	0.85	0.84	1.41	1.52	0.96	0.95
Sulfur	mg/L	0.0002	0.25	-	-	-	-	0.0073	0.007	0.0128	0.0134	0.0077	0.0083
Tellurium	mg/L	0.5	-	-	-	-	-	<0.50	<0.50	0.59	0.66	0.53	<0.50
Strontium	mg/L	0.0002	-	-	-	-	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.00030	<0.00030	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	-	-	-	-	0.00076	0.00049	0.00038	<0.00030	0.00106	<0.0015
Tungsten	mg/L	0.0001	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	<0.0010	<0.0010	0.000460	0.000435	0.000216	0.000211	0.000419	0.000445	0.000233	0.000233
Vanadium	mg/L	0.0005	0.12	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	0.00380	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	-	-	-	-	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2015				2016				2017	
				03-Jul-15	03-Jul-15	11-Aug-15	11-Aug-15	30-Jun-16	30-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17
				US	DS	US	DS	DS	US	DS	US	US	DS
Dissolved Metals and Non-Metals													
Aluminum	mg/L	0.0010	-	0.0056	<0.0050	<0.0050	<0.0050	-	-	-	-	-	-
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	-	-
Barium	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/L	0.010	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/L	0.0000050	-	0.000011	<0.000010	<0.000010	<0.000010	-	-	-	-	-	-
Calcium	mg/L	0.050	-	14.9	13.9	17.9	18.1	-	-	-	-	-	-
Chromium	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/L	0.0002	-	0.001	0.00041	0.00072	0.00045	-	-	-	-	-	-
Iron	mg/L	0.01	-	0.052	<0.010	0.017	<0.010	-	-	-	-	-	-
Lead	mg/L	0.00005	Variable ^e	0.000085	<0.000050	<0.000050	<0.000050	-	-	-	-	-	-
Magnesium	mg/L	0.005	-	6.24	6.64	8.57	8.60	-	-	-	-	-	-
Manganese	mg/L	0.0001	-	0.00271	<0.00050	0.00105	<0.00050	-	-	-	-	-	-
Mercury	mg/L	0.000005	-	<0.000010	<0.000010	<0.000010	<0.000010	-	-	-	-	-	-
Molybdenum	mg/L	0.00005	-	0.00008	0.000055	0.000067	0.000072	-	-	-	-	-	-
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	-	-
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.589	0.58	0.672	0.688	-	-	-	-	-	-
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	-	-	-	-	-	-
Silver	mg/L	0.00001	-	-	-			-	-	-	-	-	-
Sodium	mg/L	0.05	-	0.97	0.91	1.42	1.44	-	-	-	-	-	-
Strontium	mg/L	0.0002	0.25	-	-			-	-	-	-	-	-
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	-	-	-	-	-	-
Tin	mg/L	0.00010	-	-	-			-	-	-	-	-	-
Uranium	mg/L	0.000010	-	0.000244	0.000314	0.000398	0.000411	-	-	-	-	-	-
Vanadium	mg/L	0.00050	-	-	-			-	-	-	-	-	-
Zinc	mg/L	0.0010	Variable ^e	0.00750	0.0013	<0.0010	0.0039	-	-	-	-	-	-
Miscellaneous (Water)													
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date								
				2018					2019			
				03-Jul-18	03-Jul-18	03-Jul-18	02-Sep-18	02-Sep-18	22-Jun-19	22-Jun-19	09-Aug-19	09-Aug-19
				US	US Duplicate	DS	US	DS	US	DS	US	DS
In Situ Parameters												
Temperature	°C	-	-	6.3	6.3	6.5	7.9	7.9	3.1	3.1	15.6	15.6
Specific Conductance	µS/cm	-	-	0.104	0.104	0.1041	0.1394	0.1418	0.1177	0.1177	0.1707	0.1736
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	96.1	96.1	96.6	100.4	101.2	99.0	99.1	102.5	102.7
pH	pH units	-	6.5 - 9.0	8.17	8.17	8.06	8.37	8.40	8.16	8.12	8.31	8.36
Wetted Width	m	-	-	-	-	7.9	-	-	-	-	-	-
Average Depth	m	-	-	-	-	0.09	-	-	-	-	-	-
	m³/s	-	-	-	-	0.244	-	-	-	-	-	-
Physical Parameters												
pH	pH units	0.1	6.5 - 9.0	7.97	7.95	7.99	8.34	8.39	8.09	8.11	8.14	7.78
Conductivity	µS/cm	1	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	0.1	-	0.63	0.8	0.6	0.24	0.23	0.23	0.25	0.30	0.37
Hardness	mg/L as CaCO₃	-	-	52	52	53	81	85	74	74.2	84.8	87.4
Total Suspended Solids	mg/L	1	Variable ^g	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids	mg/L	17 - 20	-	68	72	55	90	95	77	80	104	112
Dissolved Anions												
Alkalinity	mg/L as CaCO₃	2.0	-	43	51	47	83	85	73	74	89	83
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	1.12	1.13	1.16	1.55	1.76	1.46	1.45	1.62	2.20
Fluoride	mg/L	-	-	<0.020	<0.020	<0.020	0.03	0.029	-	-	-	-
Sulfate	mg/L	-	-	0.58	0.58	0.6	0.84	0.91	-	-	-	-
Nutrients												
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010
Nitrate	mg/L N	0.02	3.0	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.154	2.62
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	<0.022	<0.022	0.154	2.62
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.020	<0.020	<0.020	-	-	<0.010	<0.010	<0.010	<0.010
Total Phosphorus	mg/L	0.002	0.01	0.004	0.0037	0.004	<0.0030	<0.0030	0.0119	0.0033	0.0049	<0.0030
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds												
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	1.9	2.07	1.87	2.48	2.41	2.68	2.79	2.33	2.44
Total Organic Carbon	mg/L	0.5	-	2.16	2.18	2.08	3.19	3.00	3.39	3.27	2.79	2.64
Total Kjeldahl Nitrogen	mg/L	-	-	<0.15	<0.15	<0.15	<0.15	<0.15	-	-	-	-
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date								
				2018					2019			
				03-Jul-18	03-Jul-18	03-Jul-18	02-Sep-18	02-Sep-18	22-Jun-19	22-Jun-19	09-Aug-19	09-Aug-19
				US	US Duplicate	DS	US	DS	US	DS	US	DS
Total Metals and Non-Metals												
Aluminum	mg/L	0.003	Variable ^f	0.0063	0.0067	0.0085	<0.0050	0.0058	0.0183	0.0086	0.0101	0.0503
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	0.00013
Barium	mg/L	0.0001	-	0.00328	0.00337	0.00336	0.00532	0.00527	0.00484	0.00471	0.00594	0.0069
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000123
Calcium	mg/L	0.05	-	12.1	12.1	12.2	18.9	20.5	16.3	16.5	19.1	20.6
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000012
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012
Iron	mg/L	0.01	0.300	0.016	0.016	0.018	0.021	0.019	0.027	0.016	0.035	0.081
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000117
Lithium	mg/L	0.001	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	<0.0010
Magnesium	mg/L	0.005	-	5.37	5.39	5.41	8.21	8.16	7.88	8.26	8.41	8.47
Manganese	mg/L	0.0001	Variable ^c	0.00089	0.00084	0.00093	0.00073	0.00078	0.00131	0.00091	0.00125	0.00264
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	0.073	<0.000050	<0.000050	0.000071	0.000066	0.000076	0.000056	0.000064	0.000097	0.000114
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.443	0.437	0.445	0.583	0.578	0.581	0.557	0.609	0.719
Rubidium	mg/L	0.0002	-	0.00049	0.00048	0.00045	0.00065	0.00064	0.00065	0.00064	0.00074	0.00108
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.37	0.36	0.37	0.4	0.4	0.50	0.50	0.56	0.61
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	0.745	0.738	0.749	1.08	1.1	0.958	0.939	1.08	1.20
Sulfur	mg/L	0.0002	0.25	0.0081	0.0081	0.0083	0.0125	0.013	0.0103	0.0102	0.0136	0.0147
Tellurium	mg/L	0.5	-	<0.50	<0.50	<0.50	0.57	0.55	<0.50	<0.50	<0.50	<0.50
Strontium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00081	0.00033	0.00049	0.00266
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000223	0.000219	0.00023	0.000415	0.000433	0.000331	0.000322	0.000442	0.000487
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0088
Zirconium	mg/L	0.0002	-	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00020	<0.00020	<0.00020	<0.00020

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date								
				2018					2019			
				03-Jul-18	03-Jul-18	03-Jul-18	02-Sep-18	02-Sep-18	22-Jun-19	22-Jun-19	09-Aug-19	09-Aug-19
				US	US Duplicate	DS	US	DS	US	DS	US	DS
Dissolved Metals and Non-Metals												
Aluminum	mg/L	0.0010	-	-	-	-	-	-	-	-	-	-
Arsenic	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-
Barium	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-
Boron	mg/L	0.010	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/L	0.0000050	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	0.050	-	-	-	-	-	-	-	-	-	-
Chromium	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-
Copper	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-
Iron	mg/L	0.01	-	-	-	-	-	-	-	-	-	-
Lead	mg/L	0.00005	Variable ^e	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.005	-	-	-	-	-	-	-	-	-	-
Manganese	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-
Mercury	mg/L	0.000005	-	-	-	-	-	-	-	-	-	-
Molybdenum	mg/L	0.00005	-	-	-	-	-	-	-	-	-	-
Nickel	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.000050	-	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.00001	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	0.05	-	-	-	-	-	-	-	-	-	-
Strontium	mg/L	0.0002	0.25	-	-	-	-	-	-	-	-	-
Thallium	mg/L	0.000010	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-
Uranium	mg/L	0.000010	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/L	0.00050	-	-	-	-	-	-	-	-	-	-
Zinc	mg/L	0.0010	Variable ^e	-	-	-	-	-	-	-	-	-
Miscellaneous (Water)												
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2020						2021				
				22-Jun-20	22-Jun-20	20-Jul-20	20-Jul-20	14-Aug-20	14-Aug-20	14-Jun-21	14-Jun-21	14-Jun-21	17-Aug-21	17-Aug-21
				US	DS	US	DS	US	DS	DS	DS Field Duplicate	US	DS	US
In Situ Parameters														
Temperature	°C	-	-	2.3	2.4	14.2	14.3	8.5	9	3.5	-	3.3	6.5	6.6
Specific Conductance	µS/cm	-	-	0.1194	0.1192	0.1618	0.1629	0.1988	0.2003	129.9	-	130	176	175.3
Dissolved Oxygen	mg/L	-	<9.5	13.58	13.49	10.16	10.19	99.9	101.3	13.39	-	13.17	12.17	12.20
Dissolved Oxygen	%	-	-	99	98.4	98.8	99.5	11.73	11.72	101.6	-	99.6	100.8	101.4
pH	pH units	-	6.5 - 9.0	7.91	7.89	8.2	8.24	8.37	8.38	7.88	-	7.75	8.36	8.34
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-	-
	m³/s	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters														
pH	pH units	0.1	6.5 - 9.0	7.81	7.8	8.24	8.23	8.39	8.4	8.01	7.97	7.90	7.97	8.00
Conductivity	µS/cm	1	-	123	123	172	170	203	206	135	136	136	185	183
Turbidity	NTU	0.1	-	0.52	0.59	0.15	0.17	0.22	0.21	1.18	1.16	1.12	0.27	0.23
Hardness	mg/L as CaCO₃	-	-	62.3	62.5	77.8	83.7	102	105	66.2	66.5	65.3	92.4	91.4
Total Suspended Solids	mg/L	1	Variable ^g	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	1.3	1.3	1.4	<2.0	1.0
Total Dissolved Solids	mg/L	17 - 20	-	92	93	94	95	131	128	84	84	77	96	97
Dissolved Anions														
Alkalinity	mg/L as CaCO₃	2.0	-	58	58	77	83	99	100	82.4	75.2	76.7	91.4	92.1
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	3.12	2.67	3.46	3.52	4.87	5.04	3.23	3.24	3.27	3.69	3.41
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients														
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.0010	<0.0010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate	mg/L N	0.02	3.0	0.031	0.03	<0.020	<0.020	<0.0050	0.01	0.026	0.025	0.024	<0.020	<0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010
Total Phosphorus	mg/L	0.002	0.01	0.0056	0.0071	<0.0030	0.0033	0.0036	0.0038	0.0044	0.0053	0.0081	<0.0030	<0.0030
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds														
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	3.47	3.42	2.99	3.36	2.53	2.54	3.67	4.17	4.09	3.58	3.52
Total Organic Carbon	mg/L	0.5	-	3.69	3.77	3.34	3.54	2.44	2.38	4.06	3.75	3.82	5.83	5.91
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	0.190	0.230	0.250	0.160	0.150
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2020						2021				
				22-Jun-20	22-Jun-20	20-Jul-20	20-Jul-20	14-Aug-20	14-Aug-20	14-Jun-21	14-Jun-21	14-Jun-21	17-Aug-21	17-Aug-21
				US	DS	US	DS	US	DS	DS	DS Field Duplicate	US	DS	US
Total Metals and Non-Metals														
Aluminum	mg/L	0.003	Variable ^f	0.0262	0.0441	0.0057	0.0098	0.0033	0.009	0.0191	0.0229	0.0119	0.0078	<0.0050
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	0.00010	<0.00010	0.00014	0.00012	0.00012	0.00012	0.00010	<0.00010	<0.00010
Barium	mg/L	0.0001	-	0.00469	0.00468	0.00534	0.00542	0.00603	0.00607	0.00533	0.00523	0.00502	0.00570	0.00569
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	13.5	13.7	19	19.4	24.9	25	14.5	14.7	14.7	20.2	20.1
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00010	<0.00010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.00050	0.00063	<0.00050	0.00055	<0.00050	0.00051	<0.00050	<0.00050	<0.00050	0.00055	0.00055
Iron	mg/L	0.01	0.300	0.042	0.043	0.020	0.025	0.030	0.029	0.039	0.038	0.030	0.018	0.014
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.000050	0.00006	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.001	-	<0.0010	<0.0010	<0.0010	0.0011	0.0014	0.0015	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	0.005	-	6.86	6.65	9.21	8.79	10.9	10.7	7.44	7.27	7.22	9.51	9.65
Manganese	mg/L	0.0001	Variable ^c	0.00327	0.00331	0.00113	0.00132	0.00088	0.00081	0.00331	0.00289	0.00222	0.00114	0.00106
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	0.073	0.000064	0.000083	0.00006	0.000073	0.000085	0.000075	0.000074	0.000081	0.000074	0.000082	0.000074
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	0.00077	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.6	0.581	0.636	0.611	0.627	0.654	0.819	0.805	0.791	0.687	0.687
Rubidium	mg/L	0.0002	-	0.00061	0.00069	0.00066	0.00073	0.00076	0.00079	0.00091	0.00085	0.00076	0.00074	0.00069
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.57	0.57	0.61	0.59	0.66	0.63	0.63	0.65	0.62	0.62	0.62
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	1.37	1.35	2.06	2.05	2.73	2.66	1.75	1.71	1.73	2.27	2.30
Sulfur	mg/L	0.0002	0.25	0.0088	0.0093	0.0129	0.0122	0.0163	0.0163	0.0102	0.0104	0.0102	0.0142	0.0141
Tellurium	mg/L	0.5	-	0.64	0.6	0.86	0.84	0.93	1.1	0.53	0.60	0.60	0.90	0.89
Strontium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	0.00076	0.00079	<0.00030	0.0005	<0.00030	<0.00030	<0.00070	<0.00080	0.00033	0.00033	<0.00030
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000381	0.000387	0.000452	0.000463	0.000595	0.000608	0.000446	0.000443	0.000433	0.000538	0.000530
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	0.108	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2020						2021				
				22-Jun-20	22-Jun-20	20-Jul-20	20-Jul-20	14-Aug-20	14-Aug-20	14-Jun-21	14-Jun-21	14-Jun-21	17-Aug-21	17-Aug-21
				US	DS	US	DS	US	DS	DS	DS Field Duplicate	US	DS	US
Dissolved Metals and Non-Metals														
Aluminum	mg/L	0.0010	-	0.0059	0.0074	<0.0050	<0.0050	0.0013	0.0028	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.00010	-	0.00451	0.00471	0.00496	0.00566	0.0061	0.00633	0.00493	0.00512	0.00489	0.00584	0.00581
Boron	mg/L	0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.050	-	13.5	13.7	17.6	18.5	22.7	23.4	14.3	14.3	14.2	20.8	20.4
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00010	<0.00010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0002	-	0.00042	0.00047	0.00046	0.00048	0.0005	0.00051	0.00041	0.00043	0.00040	0.00048	0.00049
Iron	mg/L	0.01	-	0.018	0.02	0.015	0.014	0.019	0.018	0.019	0.020	0.020	<0.010	<0.010
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	0.005	-	6.95	6.88	8.2	9.1	10.9	11.3	7.39	7.48	7.23	9.82	9.79
Manganese	mg/L	0.0001	-	0.00217	0.00236	<0.00050	0.00063	0.00032	0.00035	0.00347	0.00371	0.00346	<0.00050	<0.00050
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	-	0.000057	0.00007	0.000063	0.000081	0.000082	0.000085	0.000074	0.000071	0.000078	0.000072	0.000072
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.589	0.597	0.552	0.642	0.71	0.748	0.794	0.803	0.771	0.722	0.702
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silver	mg/L	0.00001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	1.45	1.46	1.91	2.06	2.88	3.06	1.73	1.75	1.73	2.29	2.32
Strontium	mg/L	0.0002	0.25	0.0086	0.0086	0.0118	0.0129	0.0148	0.015	0.0099	0.0098	0.0100	0.0146	0.0143
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.000010	-	0.000355	0.00035	0.000424	0.00043	0.000542	0.00057	0.000422	0.000417	0.000407	0.000521	0.000514
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.0010	Variable ^e	<0.0010	0.0017	<0.0010	0.0014	<0.0010	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Miscellaneous (Water)														
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date													
				2022				2023						2024			
				19-Jun-22	19-Jun-22	29-Aug-22	29-Aug-22	25-Jun-23	25-Jun-23	17-Jul-23	17-Jul-23	20-Aug-23	20-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US	DS	US	DS	US
In Situ Parameters																	
Temperature	°C	-	-	0.90	0.2	9.0	8.6	0.9	0.9	7.3	7.3	8.3	8.2	6.2	4.7	8.1	7.9
Specific Conductance	µS/cm	-	-	132.8	128.7	200	180	94	94	82.7	82.1	147.5	144	90.2	90	149	147
Dissolved Oxygen	mg/L	-	<9.5	13.58	13.62	12.62	12.32	13.09	13.09	11.37	11.87	11.24	11.28	12.26	12.26	11.04	11.03
Dissolved Oxygen	%	-	-	95.2	93.5	110.6	107.2	94.7	94.7	100.6	100.7	98.9	99.1	99.3	97	93.5	92.9
pH	pH units	-	6.5 - 9.0	7.87	7.83	8.41	8.32	7.78	7.78	7.96	7.92	8.26	8.23	7.72	7.74	8.18	8.14
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	m³/s	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters																	
pH	pH units	0.1	6.5 - 9.0	7.93	7.83	8.19	8.23	7.69	7.76	7.83	7.78	8.17	8.17	7.68	7.62	8.21	8.14
Conductivity	µS/cm	1	-	135	129	191	183	97.6	97.7	86.3	85.4	155	158	97.1	94.8	162	160
Turbidity	NTU	0.1	-	10.10	1.28	<1.0	<1.0	1.52	1.22	0.72	1.01	1.17	0.57	0.98	0.49	0.26	0.28
Hardness	mg/L as CaCO₃	-	-	66.4	65.5	102	96.5	49.1	48.6	42.1	41.3	76.0	74.5	50.2	47.9	83.3	82.3
Total Suspended Solids	mg/L	1	Variable ^g	33.5	6.5	<3.0	<3.0	3.1	3.2	<1.0	<1.0	1.8	1.2	1.0	< 1.0	< 1.0	< 1.0
Total Dissolved Solids	mg/L	17 - 20	-	68	67	98	87	44	46	48	53	64	76	54	52	90	78
Dissolved Anions																	
Alkalinity	mg/L as CaCO₃	2.0	-	64.6	62.7	104.0	87.8	81.1	70.4	48.9	48.7	86.6	75.4	47.6	48.1	80.1	79.6
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	2.73	2.64	4.11	3.26	1.57	1.55	1.47	1.03	2.72	2.23	1.05	1.23	2.13	2.01
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients																	
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Nitrate	mg/L N	0.02	3.0	0.022	0.020	0.021	<0.020	0.028	0.026	<0.020	<0.020	<0.020	<0.020	< 0.020	< 0.020	< 0.020	< 0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	0.012	<0.010	<0.010	<0.010	0.012	0.0195	0.0064	0.0187	0.0074	0.0072	< 0.0050	< 0.0050	0.0139	< 0.0050
Total Phosphorus	mg/L	0.002	0.01	0.0060	0.0044	<0.0030	<0.0030	0.0057	0.0053	0.0033	0.0036	0.0021	0.0027	0.0054	0.0039	0.0030	0.0026
Dissolved Phosphorus	mg/L	-	-	<0.050	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-
Organic Compounds																	
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	2.81	2.71	2.38	2.80	2.56	2.65	1.7	1.85	2.34	1.96	2.88	3.82	3.41	3.50
Total Organic Carbon	mg/L	0.5	-	2.74	2.84	2.54	2.51	2.52	2.66	1.98	1.94	2.25	2.19	2.78	2.82	2.48	2.53
Total Kjeldahl Nitrogen	mg/L	-	-	0.211	0.192	0.092	0.086	-	-	-	-	-	-	-	-	-	-
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date													
				2022				2023						2024			
				19-Jun-22	19-Jun-22	29-Aug-22	29-Aug-22	25-Jun-23	25-Jun-23	17-Jul-23	17-Jul-23	20-Aug-23	20-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US	DS	US	DS	US
Total Metals and Non-Metals																	
Aluminum	mg/L	0.003	Variable ^f	0.539	0.0827	0.0186	<0.0050	0.0697	0.0629	0.0114	0.0074	0.0238	0.0058	0.0429	0.0164	0.0187	0.0061
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Arsenic	mg/L	0.0001	0.005	0.00017	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Barium	mg/L	0.0001	-	0.00952	0.00629	0.00587	0.00523	0.004	0.00384	0.00304	0.00284	0.00476	0.00459	0.00406	0.00368	0.00526	0.00507
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Calcium	mg/L	0.05	-	15.3	14.4	21.7	20.2	10.5	10.6	9.33	9.12	17.1	16.4	11.2	10.2	18.1	18.1
Cesium	mg/L	0.00001	-	0.000119	0.000018	<0.000010	<0.000010	0.000012	0.000012	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Chromium	mg/L	0.0005	-	0.00064	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00099	< 0.00050	0.00065	< 0.00050
Cobalt	mg/L	0.0001	Variable ^c	0.00022	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	0.00121	0.00066	<0.00050	<0.00050	0.00053	0.00058	<0.00050	<0.00050	<0.00050	<0.00050	0.00083	< 0.00050	0.00064	0.00069
Iron	mg/L	0.01	0.300	0.613	0.104	0.025	0.027	0.117	0.118	0.021	0.019	0.046	0.025	0.057	0.028	0.038	0.019
Lead	mg/L	0.00005	0.001 - 0.007 ^c	0.000588	0.000093	<0.000050	<0.000050	0.000088	0.000074	0.000225	<0.000050	<0.000050	<0.000050	0.000068	< 0.000050	< 0.000050	< 0.000050
Lithium	mg/L	0.001	-	0.0026	0.0014	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Magnesium	mg/L	0.005	-	8.17	7.48	10.60	10.30	5.76	5.58	4.44	4.48	8.14	8.32	5.72	5.17	8.89	9.01
Manganese	mg/L	0.0001	Variable ^c	0.02030	0.00921	0.00063	0.00104	0.00942	0.00958	0.00113	0.00111	0.00185	0.00136	0.00366	0.00293	0.00112	0.00089
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Molybdenum	mg/L	0.00005	0.073	0.000115	0.000078	0.000096	0.000083	0.000059	0.000061	<0.000050	<0.000050	0.00007	0.000068	0.000070	0.000058	0.000096	0.000076
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	0.00076	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00078	< 0.00050	< 0.00050	< 0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	mg/L	0.05	-	1.010	0.767	0.714	0.618	0.535	0.523	0.367	0.365	0.546	0.526	0.579	0.557	0.641	0.635
Rubidium	mg/L	0.0002	-	0.00272	0.00106	0.00096	0.00068	0.00081	0.0007	0.00046	0.00038	0.00065	0.00058	0.00072	0.00055	0.00074	0.00066
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Silicon	mg/L	0.1	-	1.31	0.63	0.46	0.43	0.5	0.48	0.34	0.33	0.56	0.54	0.50	0.46	0.51	0.51
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Sodium	mg/L	0.05	-	1.930	1.800	2.33	2.37	1.01	0.995	0.677	0.676	1.66	1.64	0.924	0.835	1.40	1.42
Sulfur	mg/L	0.0002	0.25	0.0124	0.0095	0.0165	0.0160	0.0065	0.00652	0.00589	0.00569	0.0122	0.0115	0.00746	0.00695	0.0126	0.0122
Tellurium	mg/L	0.5	-	0.78	0.81	0.72	0.68	<0.50	<0.50	<0.50	<0.50	0.52	<0.50	< 0.50	< 0.50	< 0.50	< 0.50
Strontium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Thallium	mg/L	0.00001	0.0008	0.000015	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Thorium	mg/L	0.0001	-	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00011	< 0.00010
Titanium	mg/L	0.0003	-	0.02700	0.00377	0.00063	<0.00030	0.00310	0.00308	0.00031	<0.00030	0.00122	<0.00030	0.00191	0.00041	0.00071	< 0.00030
Tungsten	mg/L	0.0001	-	0.00019	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Uranium	mg/L	0.00001	0.015	0.000945	0.000407	0.00063	0.00052	0.000292	0.000268	0.000172	0.000160	0.000391	0.000349	0.000251	0.000216	0.000417	0.000392
Vanadium	mg/L	0.0005	0.12	0.00064	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Zinc	mg/L	0.003	0.03	0.0045	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020

Table 2.5 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-070 (BG50)

Parameters	Units	2024 LOR	CCME Guideline	Date													
				2022				2023						2024			
				19-Jun-22	19-Jun-22	29-Aug-22	29-Aug-22	25-Jun-23	25-Jun-23	17-Jul-23	17-Jul-23	20-Aug-23	20-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US	DS	US	DS	US
Dissolved Metals and Non-Metals																	
Aluminum	mg/L	0.0010	-	0.0125	0.0058	0.0053	<0.0050	0.0050	0.0038	0.0036	0.0026	0.0026	0.0025	0.0058	0.0050	0.0045	0.0468
Arsenic	mg/L	0.00010	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Barium	mg/L	0.00010	-	0.00605	0.00547	0.00602	0.0053	0.00357	0.00334	0.00309	0.00299	0.00455	0.00445	0.00357	0.00364	0.00497	0.00476
Boron	mg/L	0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Calcium	mg/L	0.050	-	14.50000	14.70000	23.0	21.1	10.4	10.2	9.45	9.23	16.7	16.3	10.9	10.6	18.3	17.8
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00054	< 0.00050	< 0.00050	< 0.00050
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Copper	mg/L	0.0002	-	0.00050	0.000480	0.00	0.00	0.00048	0.00032	0.00035	0.00034	0.00044	0.00040	0.00046	0.00034	0.00051	0.00072
Iron	mg/L	0.01	-	<0.010	<0.010	0.01000	0.01600	0.021	0.020	0.011	0.011	0.014	0.013	0.017	0.013	0.013	0.017
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Magnesium	mg/L	0.005	-	7.330000	7.020000	10.7	10.6	5.56	5.56	4.46	4.38	8.24	8.13	5.59	5.21	9.13	9.19
Manganese	mg/L	0.0001	-	0.00576	0.00623	<0.00050	<0.00050	0.00673	0.00722	0.00048	0.00046	0.00045	0.00046	0.00200	0.00191	0.00033	0.00076
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Molybdenum	mg/L	0.00005	-	0.000097	0.000073	0.000091	0.000076	<0.000050	<0.000050	<0.000050	<0.000050	0.000068	0.000060	0.000053	0.000050	0.000080	0.000067
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00052	< 0.00050	< 0.00050	< 0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	mg/L	0.05	-	0.796	0.733	0.71	0.63	0.532	0.518	0.423	0.406	0.545	0.507	0.552	0.526	0.598	0.595
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Silver	mg/L	0.00001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Sodium	mg/L	0.05	-	1.8	1.84	2.33	2.4	0.982	0.961	0.710	0.702	1.67	1.62	0.870	0.851	1.40	1.45
Strontium	mg/L	0.0002	0.25	0.011000	0.010000	0.01590	0.01530	0.00651	0.00648	0.00642	0.00621	0.0123	0.0117	0.00703	0.00678	0.0122	0.0118
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Uranium	mg/L	0.000010	-	0.000745	0.000394	0.000564	0.000466	0.000257	0.000233	0.000164	0.000146	0.000365	0.000346	0.000233	0.000210	0.000372	0.000356
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Zinc	mg/L	0.0010	Variable ^e	0.0018	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	<0.0010	<0.0010	<0.0010	0.0012	< 0.0010	0.0018	< 0.0010
Miscellaneous (Water)																	
6PPD-Quinone	ug/L	-	-	-	-	<0.0020	<0.0020	-	-	-	-	-	-	-	-	-	-

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date											
				2005			2006				2015				
				13-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	13-Jun-06	02-Aug-06	08-Sep-06	03-Jul-15	03-Jul-15	11-Aug-15	11-Aug-15	
											US	DS	US	DS	
In Situ Parameters															
Temperature	°C	-	-	0.07	10.80	4.78	-0.1	-0.1	14.96	4.91	-	-	12.8	12.7	
Specific Conductance	µS/cm	-	-	0.047	0.243	0.318	0.084	0.084	0.264	0.306	0.130	0.125	0.387	0.390	
Dissolved Oxygen	mg/L	-	<9.5	13.48	10.39	12.74	13.65	13.65	10.46	-	-	-	-	-	
Dissolved Oxygen	%	-	-	-	-	-	-	-	-	-	-	-	101.7	102.3	
pH	pH units	-	6.5 - 9.0	6.99	8.39	8.05	7.97	7.97	8.37	8.50	8.32	8.16	8.61	8.65	
Wetted Width	m	-	-	-	-	-	ice	-	3	4	-	-	7	7	
Average Depth	m	-	-	-	-	-	-	-	0.25	0.2	-	-	0.2	0.2	
Flow Rate	m³/s	-	-	-	-	-	-	-	0.28	-	-	-	0	0	
Physical Parameters															
pH	pH units	0.1	6.5 - 9.0	-	-	-	7.40	7.47	8.22	8.18	8.18	8.19	8.53	8.50	
Conductivity	µS/cm	1	-	54	257	303	92	93	273	321	-	-	-	-	
Turbidity	NTU	0.1	-	0.37	0.13	<0.10	0.6	0.5	0.2	-	0.44	0.54	0.19	0.15	
Hardness	mg/L as CaCO₃	-	-	25.1	138	178	48	48	153	159	95	94	168	169	
Total Suspended Solids	mg/L	1	Variable ⁶	-	-	-	-	-	-	-	<2.0	<2.0	<2.0	<2.0	
Total Dissolved Solids	mg/L	18 - 20	-	46	126	200	60	61	177	209	77	90	178 *	170 *	
Dissolved Anions															
Alkalinity	mg/L as CaCO₃	2.0	-	24	130	167	45	45	147	167	112	99	175	177	
Bromide	mg/L	-	-	<0.3	<0.3	<0.3	<0.05	<0.05	<0.05	<0.05	-	-	-	-	
Chloride	mg/L	0.5	120	0.9	0.7	2.4	<1	<1	1	5	2.48	2.28	8.34	8.66	
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sulfate	mg/L	-	-	0.6	0.8	2.1	2	2	<1	4.00	1.58	1.47	4.81	5.36	
Nutrients															
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	0.2	0.5	0.6	0.05	0.09	0.04	<0.02	0.17	<0.15	0.37	0.28	
Nitrite	mg/L N	0.01	0.060	<0.06	<0.06	<0.06	<0.005	<0.005	<0.005	0.015	-	-	-	-	
Nitrate	mg/L N	0.02	3.0	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<0.10	<0.020	<0.020	<0.020	<0.020	
Nitrate + Nitrite	mg/L N	-	-	<0.06	<0.06	<0.06	<0.10	<0.10	<0.10	<0.10	-	-	-	-	
Ammonia, total as N	mg/L	0.005	Variable ^a	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	
Total Phosphorus	mg/L	0.002	0.01	0.030	<0.02	<0.10	<0.01	<0.01	<0.01	<0.01	0.0040	0.0032	<0.0030	<0.0030	
Dissolved Phosphorus	mg/L	-	-	<0.02	<0.02	<0.10	-	-	-	-	-	-	-	-	
Organic Compounds															
Phenols	mg/L	-	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	
Dissolved Organic Carbon	mg/L	0.5	-	-	-	-	-	-	-	-	2.2	2.2	3.4	3.5	
Total Organic Carbon	mg/L	0.5	-	-	-	-	-	-	-	-	2.4	2.5	3.6	3.5	
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	0.17	<0.15	0.37	0.28	
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pheophytin-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-	-	

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2005			2006				2015			
				13-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	13-Jun-06	02-Aug-06	08-Sep-06	03-Jul-15	03-Jul-15	11-Aug-15	11-Aug-15
											US	DS	US	DS
Total Metals and Non-Metals														
Aluminum	mg/L	0.003	Variable ^f	0.005	<0.004	<0.004	0.006	0.005	<0.005	<0.005	0.019	0.025	0.011	<0.010
Antimony	mg/L	0.0001	-	<0.0004	<0.0004	<0.0004	-	-	-	-	-	-	-	-
Arsenic	mg/L	0.0001	0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	0.00010	<0.00010
Barium	mg/L	0.0001	-	0.001	0.006	0.007	<0.01	<0.01	<0.01	<0.01	-	-	-	-
Beryllium	mg/L	0.00002	-	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-
Bismuth	mg/L	0.00005	-	<0.0003	<0.0003	<0.0003	-	-	-	-	-	-	-	-
Boron	mg/L	0.01	1.5	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
Cadmium	mg/L	0.000005	Variable ^c	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0010	<0.0010	<0.000010	<0.000010
Calcium	mg/L	0.05	-	6.07	33.9	42.9	11	11	38	40	-	-	42.3	40.5
Cesium	mg/L	0.00001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/L	0.0005	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-
Cobalt	mg/L	0.0001	Variable ^c	<0.0003	<0.0003	<0.0003	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0008	<0.0008	0.0008	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	0.0025
Iron	mg/L	0.01	0.300	<0.05	<0.02	<0.02	<0.03	<0.03	<0.03	<0.03	<0.050	<0.050	<0.050	<0.050
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.00050	<0.00050	<0.00010	<0.00010
Lithium	mg/L	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.005	-	2.41	12.9	17.2	5	5	14	15	9.67	9.14	19.6	19.6
Manganese	mg/L	0.0001	Variable ^c	0.0029	<0.0007	<0.0007	<0.01	<0.01	<0.01	<0.01	<0.0010	<0.0010	<0.00050	0.00187
Mercury	mg/L	0.000005	0.000026	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	0.073	<0.0003	<0.0003	<0.0003	<0.005	<0.005	<0.005	<0.005	<0.00050	<0.00050	<0.00050	<0.00050
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.39	0.69	0.78	0.60	0.60	0.70	0.78	<1.0	<1.0	1.23	1.23
Rubidium	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.00005	0.001	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.00040	<0.00040	<0.000050	<0.000050
Silicon	mg/L	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.00001	0.25	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-
Sodium	mg/L	0.05	-	0.31	1.20	2.04	0.41	0.42	1.42	3.45	2.52	2.30	7.72	7.27
Strontium	mg/L	0.0002	0.25	0.0027	0.0187	0.0235	0.005	0.005	0.023	0.027	-	-	-	-
Sulfur	mg/L	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	mg/L	0.00001	0.0008	<0.0002	<0.0002	<0.0002	-	-	-	-	<0.00030	<0.00030	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	0.0001	-	<0.001	0.001	<0.001	<0.01	<0.01	<0.01	<0.01	-	-	-	-
Titanium	mg/L	0.0003	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-	-
Tungsten	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	mg/L	0.00001	0.015	-	-	-	-	-	-	-	0.0011	0.0010	0.00326	0.00293
Vanadium	mg/L	0.0005	0.12	<0.0009	<0.0009	<0.0009	<0.001	<0.001	0.001	<0.001	-	-	-	-
Zinc	mg/L	0.003	0.03	<0.001	0.0010	<0.001	<0.01	<0.01	<0.01	<0.01	<0.0030	<0.0030	<0.0030	0.0043
Zirconium	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date											
				2005			2006				2015				
				13-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	13-Jun-06	02-Aug-06	08-Sep-06	03-Jul-15	03-Jul-15	11-Aug-15	11-Aug-15	
												US	DS	US	DS
Dissolved Metals and Non-Metals															
Aluminum	mg/L	0.0010	-	<0.004	<0.004	<0.004	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	0.0101	
Arsenic	mg/L	0.00010	-	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.00010	<0.00010	0.00010	<0.00010	
Barium	mg/L	0.00010	-	<0.001	0.005	0.007	<0.01	<0.01	<0.01	<0.01	-	-	-	-	
Boron	mg/L	0.010	-	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	
Cadmium	mg/L	0.0000050	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010	<0.000010	<0.000010	
Calcium	mg/L	0.050	-	6.06	35.0	40.5	11	11	38	39	22.5	22.3	37.9	39.6	
Chromium	mg/L	0.0005	-	<0.001	0.002	0.002	<0.001	<0.001	<0.001	<0.001	-	-	-	-	
Cobalt	mg/L	0.0001	-	<0.0003	<0.0003	<0.0003	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	
Copper	mg/L	0.0002	-	<0.0008	<0.0008	<0.0008	<0.001	<0.001	<0.001	<0.001	0.00057	0.00054	0.00076	0.00077	
Iron	mg/L	0.01	-	<0.05	<0.02	<0.02	<0.03	<0.03	<0.03	<0.03	<0.010	<0.010	<0.010	0.014	
Lead	mg/L	0.00005	Variable ^e	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.000050	<0.000050	<0.000050	<0.000050	
Magnesium	mg/L	0.005	-	2.50	13.3	16.0	5	5	14	15	9.49	9.32	17.8	17	
Manganese	mg/L	0.0001	-	0.0022	<0.0007	<0.0007	<0.01	<0.01	<0.01	<0.01	<0.00050	<0.00050	<0.00050	0.00118	
Mercury	mg/L	0.000005	-	-	-	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	
Molybdenum	mg/L	0.00005	-	<0.0003	<0.0003	<0.0003	<0.005	<0.005	<0.005	<0.005	0.000067	0.000073	0.000176	0.000174	
Nickel	mg/L	0.0005	-	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	mg/L	0.05	-	0.39	0.72	0.76	0.61	0.60	0.73	0.80	0.644	0.607	1.24	1.24	
Selenium	mg/L	0.000050	-	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.000050	<0.000050	<0.000050	<0.000050	
Silver	mg/L	0.00001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-	
Sodium	mg/L	0.05	-	0.29	1.25	1.96	0.42	0.46	1.38	3.12	2.54	2.41	7.10	6.67	
Strontium	mg/L	0.0002	0.25	0.0027	0.0192	0.0224	0.005	0.005	0.023	0.026	-	-	-	-	
Thallium	mg/L	0.000010	-	<0.0002	<0.0002	<0.0002	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	
Tin	mg/L	0.00010	-	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01	<0.01	-	-	-	-	
Uranium	mg/L	0.000010	-	-	-	-	-	-	-	-	0.00101	0.00096	0.00300	0.00288	
Vanadium	mg/L	0.00050	-	<0.0009	0.0047	0.0045	<0.001	<0.001	<0.001	<0.001	-	-	-	-	
Zinc	mg/L	0.0010	Variable ^e	0.001	0.002	0.002	<0.01	<0.01	<0.01	<0.01	0.0025	0.0037	<0.0010	0.0029	
Miscellaneous (Water)															
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-	

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2016				2017		2018				
				29-Jun-16	29-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17	04-Jul-18	04-Jul-18	03-Sep-18	03-Sep-18	03-Sep-18
				DS	US	DS	US	US	DS	US	DS	US	DS	DS Field Blank
In Situ Parameters														
Temperature	°C	-	-	15.7	16	-	11.1	3.8	2.4	8.1	8.5	3.4	3.3	3.3
Specific Conductance	µS/cm	-	-	0.151	0.151	-	0.391	0.177	0.101	0.2026	0.1968	0.3137	0.3133	0.31
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	99.8	103.6	-	99.8	109.2	100.8	94.1	94.4	96.3	95.3	95.3
pH	pH units	-	6.5 - 9.0	8.19	8.23	-	8.36	7.64	7.84	8.24	8.24	8.27	8.24	8.24
Wetted Width	m	-	-	-	-	-	-	12.1	30.8	9.2	7.7	9.2	7.3	7.3
Average Depth	m	-	-	-	-	-	-	0.14	0.12	0.06	0.08	0.10	-	-
Flow Rate	m ³ /s	-	-	-	-	-	-	1.13	1.55	0.07	0.133	.052	.144	.144
Physical Parameters														
pH	pH units	0.1	6.5 - 9.0	8.1	8.19	8.47	8.51	7.73	7.75	8.24	8.24	8.43	8.37	5.77
Conductivity	µS/cm	1	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	0.1	-	1.48	1.05	0.28	0.33	0.77	0.71	0.62	0.64	0.5	0.27	<0.10
Hardness	mg/L as CaCO ₃	-	-	68	69	193	202	35	37	106	102	176	182	<10
Total Suspended Solids	mg/L	1	Variable ^g	2.0	<2.0	<2.0	<2.0	<2.0	5.1	<2.0	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids	mg/L	18 - 20	-	65	65	208	201	44	46	112	118	195	205	<20
Dissolved Anions														
Alkalinity	mg/L as CaCO ₃	2.0	-	68	75	187	191	32	27	103	100	171	168	<10
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	1.81	1.84	13.5	13.8	0.57	0.57	3.16	2.91	13.5	13.8	<0.50
Fluoride	mg/L	-	-	<0.020	<0.020	0.026	0.027	<0.020	<0.020	0.031	0.024	0.042	0.041	<0.020
Sulfate	mg/L	-	-	0.76	0.84	6.03	6.52	0.3	<0.30	1.3	0.89	3.62	3.52	<0.30
Nutrients														
NH ₃ +NH ₄	mg/L N	-	0.021 - 231 ^a	<0.15	<0.15	0.24	0.17	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	-	-	-	-	-	-	-	-	-	-	-
Nitrate	mg/L N	0.02	3.0	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	<0.020	0.085	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.020	<0.020	-	-	<0.020	<0.020	<0.020	<0.020	-	-	-
Total Phosphorus	mg/L	0.002	0.01	0.0067	0.0038	0.0048	0.0034	0.0158	0.0159	<0.0030	0.0031	<0.0030	<0.0030	<0.0030
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds														
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	1.6	1.4	3.2	3	3.93	3.56	3.2	3.05	3.27	3.16	0.51
Total Organic Carbon	mg/L	0.5	-	1.9	2.1	3.6	3.3	4.45	4.17	3.4	3.28	4.01	3.61	0.62
Total Kjeldahl Nitrogen	mg/L	-	-	<0.15	<0.15	0.24	0.17	0.29	0.26	<0.15	<0.15	0.18	0.27	<0.15
Chlorophyll-a	mg/m ₃	-	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m ₃	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2016				2017		2018				
				29-Jun-16	29-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17	04-Jul-18	04-Jul-18	03-Sep-18	03-Sep-18	03-Sep-18
				DS	US	DS	US	US	DS	US	DS	US	DS	DS Field Blank
Total Metals and Non-Metals														
Aluminum	mg/L	0.003	Variable ^f	0.096	0.042	0.024	0.02	0.0527	0.065	0.0092	0.0121	0.0239	0.011	<0.0050
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	0.00014	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.0001	-	0.0055	0.00502	0.0119	0.0118	0.00266	0.00274	0.00574	0.00561	0.0101	0.0104	<0.00010
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	16.9	16.8	44.7	46.1	8.08	8.64	25.1	24.6	41.2	43.6	<0.050
Cesium	mg/L	0.00001	-	0.000012	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Iron	mg/L	0.01	0.300	0.11	<0.050	<0.050	<0.050	0.056	0.068	0.01	0.014	0.031	0.023	<0.010
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.00010	<0.00010	<0.00010	<0.00010	0.000081	0.00009	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.001	-	<0.0010	<0.0010	0.0022	0.0023	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	0.0011	<0.0010
Magnesium	mg/L	0.005	-	6.2	6.64	19.8	21.1	3.65	3.65	10.6	9.91	17.8	17.8	<0.0050
Manganese	mg/L	0.0001	Variable ^c	0.00217	0.00082	0.00172	0.00115	0.00244	0.00296	0.0005	0.00086	0.00112	0.00162	<0.00050
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	0.073	0.00007	0.000073	0.000203	0.000224	<0.000050	<0.000050	0.000068	0.000089	0.000208	0.000219	<0.000050
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	0.00342	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.745	0.706	1.31	1.34	0.503	0.506	0.716	0.68	0.992	1	<0.050
Rubidium	mg/L	0.0002	-	0.00127	0.00097	0.00156	0.00133	0.00058	0.00062	0.00082	0.00086	0.0009	0.00092	<0.00020
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.731	0.71	1.38	1.41	0.37	0.4	0.79	0.75	1.3	1.32	<0.10
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	1.54	1.69	8.73	9.23	<0.50	<0.50	2.06	1.98	6.08	5.98	<0.050
Strontium	mg/L	0.0002	0.25	0.0101	0.0102	0.0308	0.0295	0.0047	0.005	0.0156	0.0154	0.0274	0.0303	<0.0010
Sulfur	mg/L	0.5	-	<0.50	0.55	2.56	2.87	<0.50	<0.50	0.57	<0.50	1.6	1.63	<0.50
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	0.00455	0.00162	0.00166	0.00112	0.00245	0.00325	0.00041	0.00053	0.0013	0.00059	<0.00030
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000507	0.000533	0.00361	0.00367	0.000129	0.000132	0.00135	0.00123	0.00317	0.00306	<0.000010
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0042	<0.0030	0.007	<0.0030
Zirconium	mg/L	0.0002	-	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date											
				2016				2017		2018					
				29-Jun-16	29-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17	04-Jul-18	04-Jul-18	03-Sep-18	03-Sep-18	03-Sep-18	
				DS	US	DS	US	US	DS	US	DS	US	DS	DS Field Blank	
Dissolved Metals and Non-Metals															
Aluminum	mg/L	0.0010	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/L	0.010	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/L	0.0000050	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	0.050	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	mg/L	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	mg/L	0.00005	Variable ^e	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/L	0.000005	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	mg/L	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.000050	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	mg/L	0.0002	0.25	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	mg/L	0.000010	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	mg/L	0.000010	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/L	0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/L	0.0010	Variable ^e	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous (Water)															
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2019				2020						
				22-Jun-19	22-Jun-19	09-Aug-19	09-Aug-19	22-Jun-20	22-Jun-20	22-Jun-20	21-Jul-20	21-Jul-20	14-Aug-20	14-Aug-20
				US	DS	US	DS	US	DS	DS Travel Blank	US	DS	US	DS
In Situ Parameters														
Temperature	°C	-	-	2.70	2.50	17	16.2	1.3	1.4		14.1	13.80	8.2	7.90
Specific Conductance	µS/cm	-	-	0.1952	0.19	0.3854	0.3800	0.0786	0.0764		0.3699	0.36	461.2	457.3
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	13.72	13.58		10.31	10.08	11.82	11.72
Dissolved Oxygen	%	-	-	97.40	97.10	101.8	100	97.2	96.4		100.2	97.40	100.2	98.9
pH	pH units	-	6.5 - 9.0	8.26	8.23	8.48	8.37	7.86	7.89		8.42	8.37	8.46	8.44
Wetted Width	m	-	-	-	-	-	-	-	-		-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-		-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-		-	-	-	-
Physical Parameters														
pH	pH units	0.1	6.5 - 9.0	8.26	8.26	8.21	8.41	7.62	7.65	5.72	8.43	8.38	8.53	8.5
Conductivity	µS/cm	1	-	-	-	-	-	81.4	79.7	<3.0	390	378	473	468
Turbidity	NTU	0.1	-	0.17	0.22	0.33	0.44	0.5	0.64	0.1	0.12	0.26	0.55	0.31
Hardness	mg/L as CaCO ₃	-	-	121	121	180	187	43.5	41.6	<0.50	181	177	234	234
Total Suspended Solids	mg/L	1	Variable ⁶	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids	mg/L	18 - 20	-	133	127	208	204	49	49	<13	207	200	257	258
Dissolved Anions														
Alkalinity	mg/L as CaCO ₃	2.0	-	120	118	182	188	40	39	<10	170	166	202	204
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	4.08	4.52	16.8	14.4	1.02	0.94	<0.50	17	15.2	31.3	29.6
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients														
NH ₃ +NH ₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.001	<0.0010
Nitrate	mg/L N	0.02	3.0	<0.020	<0.020	2.2	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.0165	0.0172
Nitrate + Nitrite	mg/L N	-	-	<0.022	<0.022	2.2	0.022	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.0050
Total Phosphorus	mg/L	0.002	0.01	<0.0030	<0.0030	<0.0030	<0.0030	0.0113	0.0133	<0.0030	<0.0030	0.0039	0.0039	0.0023
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds														
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	3.00	3	3.34	3.1	4.71	4.61	1.19	4.41	4.67	3.8	3.98
Total Organic Carbon	mg/L	0.5	-	4.10	3.85	3.83	3.73	5.15	5.21	1.53	4.9	4.92	3.45	3.7
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll-a	mg/m ₃	-	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m ₃	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date											
				2019				2020							
				22-Jun-19	22-Jun-19	09-Aug-19	09-Aug-19	22-Jun-20	22-Jun-20	22-Jun-20	21-Jul-20	21-Jul-20	14-Aug-20	14-Aug-20	
				US	DS	US	DS	US	DS	DS Travel Blank	US	DS	US	DS	
Total Metals and Non-Metals															
Aluminum	mg/L	0.003	Variable ^f	0.0067	0.0113	0.0224	0.0225	0.0351	0.0558	<0.0050	0.0075	0.0154	0.0033	0.0155	
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	0.00013	0.00012	<0.00010	<0.00010	<0.00010	0.00013	0.00012	0.00014	0.00015	
Barium	mg/L	0.0001	-	0.00634	0.00648	0.0123	0.0125	0.00296	0.00282	<0.00010	0.0114	0.0114	0.0126	0.0123	
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000055	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Calcium	mg/L	0.05	-	27.9	28.5	42.4	46.1	10.3	10.2	<0.050	43.7	45	52.1	53.9	
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	0.000011	0.000013	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00010	<0.00010	
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0010	<0.0010	<0.0010	<0.0010	0.00053	<0.00050	<0.00050	0.00089	0.00098	0.0008	0.0008	
Iron	mg/L	0.01	0.300	<0.010	0.013	0.033	0.027	0.04	0.065	<0.010	<0.010	0.042	<0.010	0.028	
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.000050	<0.000050	<0.000050	<0.000050	0.000066	0.000081	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Lithium	mg/L	0.001	-	0.0012	0.0012	0.0018	0.0015	<0.0010	<0.0010	<0.0010	0.0019	0.0019	0.0025	0.0026	
Magnesium	mg/L	0.005	-	12.0	11.7	18.1	15.7	4.29	4.11	<0.0050	20	18.9	24.8	24.3	
Manganese	mg/L	0.0001	Variable ^c	<0.00050	0.00156	0.00139	0.00279	0.00332	0.00428	<0.00050	0.00087	0.00568	0.00144	0.00591	
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.0000050	<0.0000050	0.000007	0.0000055	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum	mg/L	0.00005	0.073	0.000092	0.000131	0.000259	0.000272	<0.000050	0.000056	<0.000050	0.000159	0.000183	0.00022	0.000229	
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00054	<0.00050	<0.00050	
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Potassium	mg/L	0.05	-	0.724	0.754	1.26	1.22	0.484	0.453	<0.050	1.28	1.27	1.22	1.25	
Rubidium	mg/L	0.0002	-	0.00086	0.00094	0.00144	0.00185	0.00063	0.00067	<0.00020	0.00143	0.00164	0.00102	0.00119	
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Silicon	mg/L	0.1	-	0.84	0.83	1.3	1.34	0.38	0.41	<0.10	1.38	1.41	1.57	1.61	
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	
Sodium	mg/L	0.05	-	2.81	2.67	6.61	5.03	0.564	0.447	<0.050	7.9	7	11.5	10.9	
Strontium	mg/L	0.0002	0.25	0.0177	0.0181	0.0328	0.039	0.0055	0.0054	<0.0010	0.0293	0.0311	0.0365	0.0386	
Sulfur	mg/L	0.5	-	0.70	0.62	1.22	0.87	0.99	<0.50	<0.50	1.71	1.63	3.01	3	
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium	mg/L	0.0003	-	<0.00030	0.00065	0.00130	0.00107	0.00154	0.00274	<0.00030	0.00032	0.0007	<0.00030	0.00083	
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium	mg/L	0.00001	0.015	0.00157	0.00148	0.00354	0.00284	0.000197	0.000208	<0.000010	0.00288	0.0027	0.0040	0.00381	
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Zinc	mg/L	0.003	0.03	<0.0030	0.0056	<0.0030	0.0053	<0.0030	<0.0030	<0.0030	<0.0030	0.0052	<0.0030	<0.0030	
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	0.00022	0.00024	<0.00020	<0.00020	<0.00020	<0.00020	0.0002	<0.00020	0.00029	

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2019				2020						
				22-Jun-19	22-Jun-19	09-Aug-19	09-Aug-19	22-Jun-20	22-Jun-20	22-Jun-20	21-Jul-20	21-Jul-20	14-Aug-20	14-Aug-20
US	DS	US	DS	US	DS	DS Travel Blank	US	DS	US	DS				
Dissolved Metals and Non-Metals														
Aluminum	mg/L	0.0010	-	-	-	-	-	0.0096	0.011	<0.0050	<0.0050	0.006	0.0024	0.002
Arsenic	mg/L	0.00010	-	-	-	-	-	<0.00010	<0.00010	<0.00010	0.00011	0.000	<0.00010	0.000
Barium	mg/L	0.00010	-	-	-	-	-	0.00267	0.0024	<0.00010	0.0107	0.011	0.013	0.012
Boron	mg/L	0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.0000050	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.050	-	-	-	-	-	10.2	9.86	<0.050	41.1	41.800	53.2	54.300
Chromium	mg/L	0.0005	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00010	0.000
Cobalt	mg/L	0.0001	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0002	-	-	-	-	-	0.00036	0.00031	<0.00020	0.00088	0.001	0.00078	0.001
Iron	mg/L	0.01	-	-	-	-	-	0.013	0.012	<0.010	<0.010	0.013	<0.010	<0.010
Lead	mg/L	0.00005	Variable ^e	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	0.005	-	-	-	-	-	4.37	4.12	<0.0050	19	17.600	24.5	23.800
Manganese	mg/L	0.0001	-	-	-	-	-	0.00252	0.00256	<0.00050	0.00072	0.005	0.0013	0.005
Mercury	mg/L	0.000005	-	-	-	-	-	<0.0000050	0.0000063	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	-	-	-	-	-	<0.000050	<0.000050	<0.000050	0.000165	0.000	0.00019	0.000
Nickel	mg/L	0.0005	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	-	-	-	-	0.449	0.425	<0.050	1.13	1.150	1.39	1.360
Selenium	mg/L	0.000050	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	0.000	<0.000050	<0.000050
Silver	mg/L	0.00001	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010
Sodium	mg/L	0.05	-	-	-	-	-	0.532	0.457	<0.050	7.44	6.550	12.1	10.900
Strontium	mg/L	0.0002	0.25	-	-	-	-	0.0053	0.0051	<0.0010	0.0284	0.032	0.0346	0.036
Thallium	mg/L	0.000010	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin	mg/L	0.00010	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.000010	-	-	-	-	-	0.000168	0.000167	<0.000010	0.00272	0.003	0.00384	0.004
Vanadium	mg/L	0.00050	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.0010	Variable ^e	-	-	-	-	0.0029	0.0028	<0.0010	<0.0010	0.004	<0.0010	0.002
Miscellaneous (Water)														
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date							
				2021				2022			
				14-Jun-21	14-Jun-21	17-Aug-21	17-Aug-21	24-Jun-22	24-Jun-22	29-Aug-22	29-Aug-22
				DS	US	DS	US	DS	US	DS	US
In Situ Parameters											
Temperature	°C	-	-	1.1	1.2	8.7	6.8	1.2	0.8	7.5	8.9
Specific Conductance	µS/cm	-	-	39.9	40.1	325.9	336.1	19.1	20.2	434	433.1
Dissolved Oxygen	mg/L	-	<9.5	13.96	14.11	11.92	11.96	13.08	13.26	12.38	12.18
Dissolved Oxygen	%	-	-	100.5	102.0	100.4	101.2	92.1	92.2	106.1	108.0
pH	pH units	-	6.5 - 9.0	7.60	7.40	8.52	8.49	7.32	7.60	8.34	8.36
Wetted Width	m	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-
Physical Parameters											
pH	pH units	0.1	6.5 - 9.0	7.44	7.50	8.31	8.36	7.39	7.14	8.45	8.48
Conductivity	µS/cm	1	-	43.8	44.3	333	352	25.70	22.50	436	443
Turbidity	NTU	0.1	-	5.10	6.82	0.22	0.17	1.06	0.99	<1.0	<1.0
Hardness	mg/L as CaCO ₃	-	-	19.8	19.8	172	178	10.7	9.75	219	226
Total Suspended Solids	mg/L	1	Variable ^B	12.9	17.0	<1.0	<1.0	8.5	5.7	<3.0	<3.0
Total Dissolved Solids	mg/L	18 - 20	-	35	37	123	187	<10	<10	229	226
Dissolved Anions											
Alkalinity	mg/L as CaCO ₃	2.0	-	22.5	22.8	169	175	11.4	9.5	192.0	192.0
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	1.08	1.28	8.12	10.9	0.65	0.60	21.30	22.50
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-
Nutrients											
NH ₃ +NH ₄	mg/L N	-	0.021 - 231 ^A	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate	mg/L N	0.02	3.0	<0.020	0.024	0.057	<0.020	0.023	0.024	0.020	<0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^A	<0.010	<0.010	<0.010	<0.010	0.01	0.011	<0.010	<0.010
Total Phosphorus	mg/L	0.002	0.01	0.0125	0.0134	<0.0030	<0.0030	0.0045	0.0036	<0.0030	<0.0030
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050
Organic Compounds											
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	3.31	3.53	4.89	4.68	3.05	2.30	3.47	3.71
Total Organic Carbon	mg/L	0.5	-	3.60	3.61	7.11	6.80	2.00	1.58	3.62	3.70
Total Kjeldahl Nitrogen	mg/L	-	-	0.170	0.190	0.190	0.180	0.182	0.152	0.178	0.146
Chlorophyll-a	mg/m ₃	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m ₃	-	-	-	-	-	-	-	-	-	-

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date								
				2021				2022				
				14-Jun-21	14-Jun-21	17-Aug-21	17-Aug-21	24-Jun-22	24-Jun-22	29-Aug-22	29-Aug-22	
				DS	US	DS	US	DS	US	DS	US	
Total Metals and Non-Metals												
Aluminum	mg/L	0.003	Variable ^f	0.186	0.223	0.0127	0.0101	0.1440	0.1130	0.0178	<0.0050	
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	0.00011	0.00010	<0.00010	<0.00010	0.00010	<0.00010	
Barium	mg/L	0.0001	-	0.00285	0.00330	0.00880	0.00916	0.00183	0.00165	0.01120	0.01120	
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Calcium	mg/L	0.05	-	5.33	5.42	42.4	40.2	2.91	2.57	47.5	47.1	
Cesium	mg/L	0.00001	-	0.000032	0.000046	<0.000010	<0.000010	0.000038	0.000028	<0.000010	<0.000010	
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.00050	<0.00050	0.00082	0.00078	<0.00050	<0.00050	0.00078	0.00074	
Iron	mg/L	0.01	0.300	0.197	0.229	0.016	0.013	0.165	0.117	0.026	<0.010	
Lead	mg/L	0.00005	0.001 - 0.007 ^c	0.000227	0.000265	<0.000050	<0.000050	0.000217	0.000164	<0.000050	<0.000050	
Lithium	mg/L	0.001	-	<0.0010	<0.0010	0.0014	0.0016	<0.0010	<0.0010	0.0022	0.0021	
Magnesium	mg/L	0.005	-	2.18	2.15	16.2	18.6	1.100	0.977	24.40	24.90	
Manganese	mg/L	0.0001	Variable ^c	0.00766	0.00803	0.00243	0.00179	0.00945	0.00790	0.00210	0.00097	
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum	mg/L	0.00005	0.073	0.000053	<0.000050	0.000169	0.000166	<0.000050	<0.000050	0.000208	0.000212	
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Potassium	mg/L	0.05	-	0.450	0.462	0.948	1.03	0.254	0.237	1.170	1.200	
Rubidium	mg/L	0.0002	-	0.00105	0.00130	0.00109	0.00087	0.00088	0.00071	0.00109	0.00096	
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Silicon	mg/L	0.1	-	0.55	0.65	1.48	1.58	0.31	0.27	1.59	1.55	
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Sodium	mg/L	0.05	-	0.427	0.404	3.96	5.69	0.257	0.251	10.400	11.10	
Strontium	mg/L	0.0002	0.25	0.0036	0.0037	0.0312	0.0273	0.0024	0.0020	0.0365	0.0358	
Sulfur	mg/L	0.5	-	<0.50	<0.50	1.22	1.44	<0.50	<0.50	2.42	2.54	
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium	mg/L	0.0003	-	0.00841	<0.020	0.00061	<0.00050	0.0072	0.00519	0.00096	<0.00030	
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium	mg/L	0.00001	0.015	0.000187	0.000183	0.00227	0.00269	0.00016	0.00013	0.003940	0.00413	
Vanadium	mg/L	0.0005	0.12	<0.00050	0.00051	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	
Zirconium	mg/L	0.0002	-	<0.00020	0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date							
				2021				2022			
				14-Jun-21	14-Jun-21	17-Aug-21	17-Aug-21	24-Jun-22	24-Jun-22	29-Aug-22	29-Aug-22
				DS	US	DS	US	DS	US	DS	US
Dissolved Metals and Non-Metals											
Aluminum	mg/L	0.0010	-	0.0109	0.0141	<0.0050	<0.0050	0.0089	0.0061	<0.0050	<0.0050
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010
Barium	mg/L	0.00010	-	0.00147	0.00149	0.00892	0.00955	0.00093	0.00083	0.0114	0.0119
Boron	mg/L	0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.050	-	4.72	4.67	42.6	40.4	2.650	2.410	48.30	48.50
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0002	-	<0.00020	0.00021	0.00078	0.00075	<0.00020	<0.00020	0.000730	0.000740
Iron	mg/L	0.01	-	0.012	0.017	<0.010	<0.010	0.012	<0.010	<0.010	<0.010
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	0.005	-	1.95	1.97	15.9	18.7	0.996	0.908	23.90	25.40
Manganese	mg/L	0.0001	-	0.00633	0.00665	0.00194	0.00160	0.00587	0.00505	0.00179	0.00083
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	-	<0.000050	<0.000050	0.000153	0.000148	<0.000050	<0.000050	0.000216	0.000206
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.338	0.343	0.945	1.03	0.211	0.197	1.190	1.24
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silver	mg/L	0.00001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	0.384	0.427	3.74	5.69	0.255	0.241	10.2	11.8
Strontium	mg/L	0.0002	0.25	0.0030	0.0030	0.0326	0.0275	0.0021	0.0018	0.0368	0.0357
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.000010	-	0.000116	0.000117	0.00209	0.00259	0.00010	0.00007	0.0036	0.00393
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.0010	Variable ^e	<0.0010	<0.0010	0.0016	<0.0010	0.0017	<0.0010	0.0023	<0.0010
Miscellaneous (Water)											
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	<0.0020	<0.0020

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				25-Jun-23	25-Jun-23	17-Jul-23	17-Jul-23	20-Aug-23	20-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
In Situ Parameters													
Temperature	°C	-	-	1.3	0.7	9.3	9.1	7.36	7.4	4.2	3.5	8.1	8.3
Specific Conductance	µS/cm	-	-	49.9	42.6	164.1	169.5	360.4	361.4	46.5	50	357.9	360.6
Dissolved Oxygen	mg/L	-	<9.5	12.71	12.13	11.22	11.2	11.36	11.42	12.31	12.56	10.94	11.13
Dissolved Oxygen	%	-	-	94.5	84.8	101.8	100.4	99.5	99.6	94.7	95.1	92.7	94.9
pH	pH units	-	6.5 - 9.0	7.75	7.85	8.07	8.15	8.45	8.45	7.85	7.56	8.3	8.35
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters													
pH	pH units	0.1	6.5 - 9.0	7.49	7.46	8.05	8.1	8.45	8.5	7.18	7.27	8.35	8.40
Conductivity	µS/cm	1	-	53.7	48.4	176	180	364	383	49.0	55.4	384	387
Turbidity	NTU	0.1	-	20	15.6	0.43	0.44	1.07	0.22	1.39	1.81	0.32	0.18
Hardness	mg/L as CaCO ₃	-	-	25.0	20.3	85.6	87.7	189.7	189.0	24.0	27.5	193	188
Total Suspended Solids	mg/L	1	Variable ^B	76.1	72.4	<1.0	<1.0	1.9	<1.0	4.0	10.0	< 1.0	< 1.0
Total Dissolved Solids	mg/L	18 - 20	-	30	24	100	98	193	206	50	36	204	207
Dissolved Anions													
Alkalinity	mg/L as CaCO ₃	2.0	-	36.5	27.4	85.1	92.4	178	182	25.5	27.5	182	180
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	1.56	1.32	3.27	3.48	9.77	13.1	0.57	0.81	14.1	14.4
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients													
NH ₃ +NH ₄	mg/L N	-	0.021 - 231 ^A	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Nitrate	mg/L N	0.02	3.0	0.042	0.043	<0.020	<0.020	0.025	<0.020	< 0.020	< 0.020	< 0.020	< 0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^A	0.0149	0.0118	<0.0050	<0.0050	0.0088	0.0148	< 0.0050	< 0.0050	< 0.0050	0.0120
Total Phosphorus	mg/L	0.002	0.01	0.0192	0.0152	0.0063	0.0036	0.0021	0.0027	0.0083	0.0086	< 0.0020	< 0.0020
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds													
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	3.14	2.8	2.12	2.2	4.07	3.45	3.63	3.48	4.05	3.55
Total Organic Carbon	mg/L	0.5	-	3.2	3	2.21	2.44	4.2	3.69	3.46	3.50	3.54	3.49
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll-a	mg/m ₃	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m ₃	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				25-Jun-23	25-Jun-23	17-Jul-23	17-Jul-23	20-Aug-23	20-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
Total Metals and Non-Metals													
Aluminum	mg/L	0.003	Variable ^f	0.696	0.531	0.0088	0.0094	0.0304	0.0111	0.0588	0.0818	0.0062	0.0036
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Arsenic	mg/L	0.0001	0.005	0.00014	0.00011	<0.00010	<0.00010	0.0001	0.0001	< 0.00010	< 0.00010	0.00011	0.00012
Barium	mg/L	0.0001	-	0.00725	0.00583	0.00498	0.00499	0.00974	0.0109	0.00205	0.00237	0.0107	0.0105
Beryllium	mg/L	0.00002	-	0.000034	0.000021	<0.000020	<0.000020	<0.000020	<0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cadmium	mg/L	0.000005	Variable ^c	0.000005	0.0000059	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Calcium	mg/L	0.05	-	7.6	6.28	20.1	20.4	45.9	42.2	5.68	6.96	43.5	43.2
Cesium	mg/L	0.00001	-	0.000136	0.000109	<0.000010	<0.000010	0.000015	<0.000010	0.000011	0.000019	< 0.000010	< 0.000010
Chromium	mg/L	0.0005	-	0.00115	0.0007	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	0.00066	< 0.00050
Cobalt	mg/L	0.0001	Variable ^c	0.00036	0.00023	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	0.00107	0.00098	0.00065	<0.00050	0.00081	0.00076	0.00121	< 0.00050	0.00080	0.00081
Iron	mg/L	0.01	0.300	0.776	0.572	0.015	0.016	0.036	0.016	0.057	0.087	0.015	< 0.010
Lead	mg/L	0.00005	0.001 - 0.007 ^c	0.00108	0.000801	<0.000050	<0.000050	<0.000050	<0.000050	0.000115	0.000109	< 0.000050	< 0.000050
Lithium	mg/L	0.001	-	0.0022	0.0017	<0.0010	<0.0010	0.0015	0.0018	< 0.0010	< 0.0010	0.0018	0.0019
Magnesium	mg/L	0.005	-	3.4	2.89	8.41	8.66	16.8	20.3	2.48	3.09	19.9	20.8
Manganese	mg/L	0.0001	Variable ^c	0.0268	0.0223	0.00152	0.00147	0.00267	0.00168	0.00489	0.00730	0.00154	0.00059
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Molybdenum	mg/L	0.00005	0.073	0.000138	0.000114	0.000069	0.000062	0.000157	0.000159	< 0.000050	< 0.000050	0.000226	0.000208
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	0.00078	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	mg/L	0.05	-	0.785	0.635	0.515	0.534	0.944	1.05	0.436	0.482	1.17	1.20
Rubidium	mg/L	0.0002	-	0.00312	0.00254	0.00065	0.00057	0.00118	0.00091	0.00059	0.00083	0.00105	0.00094
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Silicon	mg/L	0.1	-	1.51	1.16	0.72	0.8	1.7	1.96	0.32	0.40	1.58	1.63
Silver	mg/L	0.00001	0.25	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Sodium	mg/L	0.05	-	0.642	0.551	1.92	2.03	4.54	7.72	0.263	0.358	7.61	8.27
Strontium	mg/L	0.0002	0.25	0.00682	0.00527	0.0124	0.0118	0.0376	0.031	0.00314	0.00389	0.0326	0.0312
Sulfur	mg/L	0.5	-	<0.50	<0.50	<0.50	<0.50	1.15	1.68	< 0.50	< 0.50	1.57	1.59
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Thallium	mg/L	0.00001	0.0008	0.000019	0.000016	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Thorium	mg/L	0.0001	-	0.00028	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Titanium	mg/L	0.0003	-	0.0354	0.0251	0.00045	0.00052	0.00158	0.00051	0.00229	0.00391	0.00030	< 0.00030
Tungsten	mg/L	0.0001	-	0.0002	0.00018	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Uranium	mg/L	0.00001	0.015	0.000958	0.000534	0.000846	0.000852	0.00255	0.00318	0.000100	0.000107	0.00326	0.00332
Vanadium	mg/L	0.0005	0.12	0.00103	0.00064	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Zinc	mg/L	0.003	0.03	0.0045	0.0036	<0.0030	<0.0030	<0.0030	<0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030
Zirconium	mg/L	0.0002	-	0.00036	0.00026	<0.00020	<0.00020	0.00024	0.00023	< 0.00020	< 0.00020	0.00020	< 0.00020

Table 2.6 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-080 (CV040)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				25-Jun-23	25-Jun-23	17-Jul-23	17-Jul-23	20-Aug-23	20-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
Dissolved Metals and Non-Metals													
Aluminum	mg/L	0.0010	-	0.0252	0.0157	0.0026	0.0034	0.0046	0.0019	0.0069	0.0069	0.0029	0.0018
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Barium	mg/L	0.00010	-	0.00205	0.00166	0.00497	0.00499	0.00995	0.00992	0.00160	0.00165	0.00988	0.00971
Boron	mg/L	0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Calcium	mg/L	0.050	-	5.89	4.84	20.5	20.5	46.5	40.7	5.60	6.26	43.0	41.0
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Copper	mg/L	0.0002	-	0.00023	0.00022	0.00059	0.00048	0.00095	0.00072	< 0.00020	0.00025	0.00081	0.00082
Iron	mg/L	0.01	-	0.021	0.013	0.011	<0.010	<0.010	<0.010	< 0.010	0.010	< 0.010	< 0.010
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Magnesium	mg/L	0.005	-	2.47	1.97	8.28	8.78	17.7	20.3	2.44	2.88	20.8	20.7
Manganese	mg/L	0.0001	-	0.00985	0.00862	0.0022	0.00118	0.00174	0.00126	0.00304	0.00370	0.00136	0.00047
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Molybdenum	mg/L	0.00005	-	0.00012	0.000082	0.000074	0.000071	0.00014	0.000154	< 0.000050	< 0.000050	0.000207	0.000194
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	mg/L	0.05	-	0.534	0.415	0.598	0.614	0.96	1.02	0.423	0.428	1.11	1.10
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Silver	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Sodium	mg/L	0.05	-	0.63	0.449	1.88	2.09	4.81	7.47	0.257	0.315	7.60	8.05
Strontium	mg/L	0.0002	0.25	0.00545	0.00373	0.0129	0.0126	0.0377	0.0298	0.00309	0.00350	0.0326	0.0303
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Uranium	mg/L	0.000010	-	0.000697	0.000264	0.000803	0.000832	0.00231	0.00301	0.000082	0.000073	0.00304	0.00306
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Zinc	mg/L	0.0010	Variable ^e	<0.0010	0.0012	0.0019	<0.0010	0.0023	<0.0010	< 0.0010	< 0.0010	0.0016	< 0.0010
Miscellaneous (Water)													
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date							
				2005			2006			2015	
				07-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	29-Jul-06	10-Sep-06	12-Aug-15	12-Aug-15
										US	DS
In Situ Parameters											
Temperature	°C	-	-	0.74	9.35	6.59	1.56	7.36	3.02	9.6	9.4
Specific Conductance	µS/cm	-	-	0.019	0.081	0.088	0.031	0.083	0.091	0.100	0.101
Dissolved Oxygen	mg/L	-	<9.5	12.14	11.62	12.82	12.71	13.40	-	-	-
Dissolved Oxygen	%	-	-	-	-	-	-	-	-	102.30	102.8
pH	pH units	-	6.5 - 9.0	7.20	7.60	7.02	7.38	7.59	7.92	8.08	8.07
Wetted Width	m	-	-	-	-	-	-	54	59	-	-
Average Depth	m	-	-	-	-	-	-	5	2.5	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-
Physical Parameters											
pH	pH units	0.1	6.5 - 9.0	-	-	-	6.97	7.03	6.97	7.80	7.81
Conductivity	µS/cm	1	-	27	90	93	38	86	97	-	-
Turbidity	NTU	0.1	-	0.50	0.99	0.55	0.7	1.1	1.4	1.0	1.1
Hardness	mg/L as CaCO₃	-	-	8.57	42.0	46.3	16	41	43	37	38
Total Suspended Solids	mg/L	1	Variable [§]	-	-	-	-	-	-	2	2
Total Dissolved Solids	mg/L	19 -20	-	31	<30	<30	25	56	63	50 *	46 *
Dissolved Anions											
Alkalinity	mg/L as CaCO₃	2.0	-	8	43	45	16	44	47	38	35
Bromide	mg/L	-	-	<0.3	<0.3	<0.3	<0.05	<0.05	<0.05	-	-
Chloride	mg/L	0.5	120	0.8	1.0	1.2	<1	1	2	4.96	5.29
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	0.7	0.6	0.7	2	2	3	1.30	1.35
Nutrients											
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	0.5	<0.10	0.4	0.04	0.05	0.04	0.27	0.28
Nitrite	mg/L N	0.01	0.060	<0.06	<0.06	<0.06	<0.005	0.018	0.008	-	-
Nitrate	mg/L N	0.02	3.0	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<0.020	<0.020
Nitrate + Nitrite	mg/L N	-	-	<0.06	<0.06	<0.06	<0.10	<0.10	<0.10	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	-	-	-	-	-	-	<0.050	<0.050
Total Phosphorus	mg/L	0.002	0.01	<0.02	<0.02	<0.10	<0.01	<0.01	0.02	0.0080	0.0058
Dissolved Phosphorus	mg/L	-	-	<0.02	<0.02	<0.10	-	-	-	-	-
Organic Compounds											
Phenols	mg/L	-	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Dissolved Organic Carbon	mg/L	0.5	-	-	-	-	-	-	-	2.2	2.2
Total Organic Carbon	mg/L	0.5	-	-	-	-	-	-	-	2.3	2.3
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	0.27	0.28
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m₃	-	-	-	-	-	-	-	-	-	-

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date							
				2005			2006			2015	
				07-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	29-Jul-06	10-Sep-06	12-Aug-15	12-Aug-15
										US	DS
Total Metals and Non-Metals											
Aluminum	mg/L	0.003	Variable ^f	0.025	0.039	0.020	0.023	0.043	0.066	0.091	<0.010
Antimony	mg/L	0.0001	-	<0.0004	<0.0004	<0.0004	-	-	-	-	-
Arsenic	mg/L	0.0001	0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.00010	<0.00010
Barium	mg/L	0.0001	-	0.002	0.004	0.005	<0.01	<0.01	<0.01	-	-
Beryllium	mg/L	0.00002	-	<0.005	<0.005	<0.005	-	-	-	-	-
Bismuth	mg/L	0.00005	-	<0.0003	<0.0003	<0.0003	-	-	-	-	-
Boron	mg/L	0.01	1.5	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
Cadmium	mg/L	0.000005	Variable ^c	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010
Calcium	mg/L	0.05	-	1.51	8.62	9.34	3.0	8.0	9.0	7.76	7.77
Cesium	mg/L	0.00001	-	-	-	-	-	-	-	-	-
Chromium	mg/L	0.0005	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Cobalt	mg/L	0.0001	Variable ^c	<0.0003	<0.0003	<0.0003	<0.0002	<0.0002	<0.0002	-	-
Copper	mg/L	0.0005	0.002 - 0.004 ^c	0.0009	0.0010	0.0008	<0.001	<0.001	0.001	<0.0010	<0.0010
Iron	mg/L	0.01	0.300	0.05	0.03	0.02	0.07	0.04	0.04	0.121	<0.050
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.00010	<0.00010
Lithium	mg/L	0.001	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.005	-	1.16	4.97	5.59	2.0	5.0	5.0	5.07	4.94
Manganese	mg/L	0.0001	Variable ^c	0.0183	0.0012	0.0009	<0.01	<0.01	<0.01	0.00319	0.00084
Mercury	mg/L	0.000005	0.000026	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	0.073	<0.0003	<0.0003	<0.0003	<0.005	<0.005	<0.005	0.000650	0.000850
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.0010	<0.0010
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.81	0.58	0.60	0.49	0.58	0.57	0.631	0.627
Rubidium	mg/L	0.0002	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.00005	0.001	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.000050	<0.000050
Silicon	mg/L	0.1	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.00001	0.25	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Sodium	mg/L	0.05	-	0.34	0.68	0.70	0.31	0.72	0.93	2.81	2.91
Strontium	mg/L	0.0002	0.25	0.0012	0.0049	0.0054	0.002	0.006	0.007	-	-
Sulfur	mg/L	0.5	-	-	-	-	-	-	-	-	-
Tellurium	mg/L	0.0002	-	-	-	-	-	-	-	-	-
Thallium	mg/L	0.00001	0.0008	<0.0002	<0.0002	<0.0002	-	-	-	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	-	-	-	-	-	-	-	-
Tin	mg/L	0.0001	-	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01	-	-
Titanium	mg/L	0.0003	-	<0.003	<0.003	<0.003	-	-	-	-	-
Tungsten	mg/L	0.0001	-	-	-	-	-	-	-	-	-
Uranium	mg/L	0.00001	0.015	-	-	-	-	-	-	0.000319	0.000324
Vanadium	mg/L	0.0005	0.12	<0.0009	<0.0009	<0.0009	<0.001	<0.001	<0.001	-	-
Zinc	mg/L	0.003	0.03	0.0020	0.0020	<0.001	<0.01	<0.01	<0.01	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	-	-	-	-	-	-	-	-

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date							
				2005			2006			2015	
				07-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	29-Jul-06	10-Sep-06	12-Aug-15	12-Aug-15
										US	DS
Dissolved Metals and Non-Metals											
Aluminum	mg/L	0.0010	-	0.013	0.006	0.004	0.009	<0.005	0.007	<0.0050	0.090
Arsenic	mg/L	0.00010	-	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.00010	<0.00010
Barium	mg/L	0.00010	-	0.002	0.004	0.005	<0.01	<0.01	<0.01	-	-
Boron	mg/L	0.010	-	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	-	-
Cadmium	mg/L	0.0000050	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010
Calcium	mg/L	0.050	-	1.60	9.05	8.60	3	8	9	7.39	7.78
Chromium	mg/L	0.00050	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Cobalt	mg/L	0.0001	-	<0.0003	<0.0003	<0.0003	<0.0002	<0.0002	<0.0002	-	-
Copper	mg/L	0.0002	-	<0.0008	0.0009	0.0010	<0.001	<0.001	<0.001	0.00066	0.00080
Iron	mg/L	0.01	-	0.04	<0.02	<0.02	0.06	<0.03	<0.03	<0.010	0.107
Lead	mg/L	0.00005	Variable ^e	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.000050	<0.000050
Magnesium	mg/L	0.005	-	1.24	5.23	5.12	2	5	5	4.40	4.56
Manganese	mg/L	0.0001	-	0.0175	<0.0007	<0.0007	<0.01	<0.01	<0.01	0.00058	0.00181
Mercury	mg/L	0.000005	-	-	-	-	-	-	-	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	-	<0.0003	<0.0003	<0.0003	<0.005	<0.005	<0.005	0.000065	0.000080
Nickel	mg/L	0.0005	-	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.85	0.61	0.58	0.48	0.54	0.57	0.599	0.680
Selenium	mg/L	0.000050	-	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.000050	<0.000050
Silver	mg/L	0.00001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Sodium	mg/L	0.05	-	0.37	0.72	0.68	0.31	0.72	1.02	2.68	2.82
Strontium	mg/L	0.0002	0.25	0.0013	0.0052	0.0049	0.002	0.006	0.007	-	-
Thallium	mg/L	0.000010	-	<0.0002	<0.0002	<0.0002	-	-	-	<0.000010	<0.000010
Tin	mg/L	0.00010	-	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01	-	-
Uranium	mg/L	0.000010	-	-	-	-	-	-	-	0.000296	0.000329
Vanadium	mg/L	0.00050	-	<0.0009	0.0015	<0.0009	<0.001	<0.001	<0.001	-	-
Zinc	mg/L	0.0010	Variable ^e	0.002	0.002	0.001	<0.01	<0.01	<0.01	<0.0010	0.0029
Miscellaneous (Water)											
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2016				2017		2018				
				29-Jun-16	29-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17	04-Jul-18	04-Jul-18	04-Jul-18	02-Sep-18	02-Sep-18
				US	DS	DS	US	US	DS	US	US Travel Blank	DS	US	DS
In Situ Parameters														
Temperature	°C	-	-	5.6	6.4	8.7	10.7	4.4	3.2	2.7	2.7	2.6	8.0	8.7
Specific Conductance	µS/cm	-	-	0.640	0.800	0.102	0.095	0.166	0.125	0.0826	0.0826	0.0824	0.0723	0.0904
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	107.4	109.5	94.1	100.0	107.1	101.9	93.5	93.5	93.5	102.8	103.3
pH	pH units	-	6.5 - 9.0	7.74	8.36	8.19	8.11	7.45	7.71	7.76	7.76	7.92	8.23	8.30
Wetted Width	m	-	-	-	-	-	-	-	15.4	50	50	50	-	-
Average Depth	m	-	-	-	-	-	-	-	0.7	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	4.5276	-	-	-	-	-
Physical Parameters														
pH	pH units	0.1	6.5 - 9.0	7.42	7.41	8.08	7.96	7.65	7.72	7.65	6.29	7.67	7.97	7.95
Conductivity	µS/cm	1	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	0.1	-	1.1	1.1	2.0	1.0	1.06	1.01	0.72	0.19	1.88	0.75	0.69
Hardness	mg/L as CaCO₃	-	-	27	29	42	38	28	33	34	<10	34	34	37.0
Total Suspended Solids	mg/L	1	Variable ^g	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids	mg/L	19 -20	-	40	25	52	38	34	41	48	<10	53	65	67
Dissolved Anions														
Alkalinity	mg/L as CaCO₃	2.0	-	30	31	41	35	17	27	33	<10	32	35	34
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	2.44	2.49	3.87	3.79	2.50	3.74	5.66	<0.50	5.68	5.39	10.90
Fluoride	mg/L	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sulfate	mg/L	-	-	0.70	0.72	1.15	0.97	0.71	1.06	1.06	<0.30	1.11	0.86	1.28
Nutrients														
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	<0.15	<0.15	<0.15	<0.15	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	-	-	-	-	-	-	-	-	-	-	-
Nitrate	mg/L N	0.02	3.0	<0.020	<0.020	0.03	<0.020	<0.020	<0.020	0.027	<0.020	0.027	<0.020	<0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.020	0.05	<0.020	<0.020	0.029	<0.020	<0.020	<0.020	<0.020	-	-
Total Phosphorus	mg/L	0.002	0.01	0.0068	<0.0030	0.0071	0.0095	0.0084	0.0087	0.0041	<0.0030	0.0032	0.006	0.050
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds														
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	1.8	1.9	2.3	1.9	2.01	1.88	1.92	<0.50	1.97	2.17	2.22
Total Organic Carbon	mg/L	0.5	-	1.9	1.8	2.3	2.0	2.24	2.17	2.18	0.65	2.25	2.51	2.84
Total Kjeldahl Nitrogen	mg/L	-	-	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2016				2017		2018				
				29-Jun-16	29-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17	04-Jul-18	04-Jul-18	04-Jul-18	02-Sep-18	02-Sep-18
				US	DS	DS	US	US	DS	US	US Travel Blank	DS	US	DS
Total Metals and Non-Metals														
Aluminum	mg/L	0.003	Variable ^f	0.042	0.150	0.052	0.037	0.033	0.071	0.0189	<0.0050	0.018	0.0249	0.0204
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.0001	-	0.00368	0.00433	0.00576	0.00502	0.00389	0.00457	0.00410	<0.00010	0.00413	0.00438	0.00455
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	5.19	5.58	8.32	7.66	5.61	6.66	6.90	<0.050	6.88	6.82	7.40
Cesium	mg/L	0.00001	-	<0.000010	0.000016	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0010	0.0011	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Iron	mg/L	0.01	0.300	0.052	0.186	0.058	<0.050	0.058	0.10	0.032	<0.010	0.033	0.031	0.025
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	0.00010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.001	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	0.005	-	3.30	3.59	5.04	4.71	3.48	4.08	4.19	<0.0050	4.13	4.13	4.56
Manganese	mg/L	0.0001	Variable ^c	0.00201	0.00408	0.00217	0.00159	0.00400	0.00380	0.00264	<0.00050	0.00267	0.00115	0.00151
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	0.073	0.000065	0.000069	0.000099	0.000075	0.000063	0.000078	0.000089	<0.000050	0.000080	0.000077	0.000086
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	0.00077	0.00054	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.516	0.580	0.717	0.645	0.613	0.688	0.594	<0.050	0.598	0.581	0.639
Rubidium	mg/L	0.0002	-	0.00073	0.00109	0.00138	0.00110	0.00082	0.00101	0.00095	<0.00020	0.00098	0.00093	0.00097
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.390	0.603	0.636	0.525	0.470	0.520	0.470	<0.10	0.480	0.380	0.380
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	1.40	1.49	2.25	2.39	1.55	2.09	2.70	<0.050	2.85	2.60	5.10
Strontium	mg/L	0.0002	0.25	0.0046	0.0048	0.0079	0.0074	0.0049	0.0060	0.0081	<0.0010	0.0081	0.0079	0.0122
Sulfur	mg/L	0.5	-	<0.50	<0.50	<0.50	0.53	0.51	<0.50	0.52	<0.50	0.51	0.53	0.64
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	<0.0020 *	0.00821	0.00203	0.00165	<0.0015	0.00388	0.00051	<0.00030	0.00055	0.0008	0.00064
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000210	0.000238	0.000368	0.000319	0.000193	0.000261	0.000263	<0.000010	0.000260	0.000279	0.000310
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	0.0053	<0.0030	<0.0030	<0.0030	0.0107	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2016				2017		2018				
				29-Jun-16	29-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17	04-Jul-18	04-Jul-18	04-Jul-18	02-Sep-18	02-Sep-18
				US	DS	DS	US	US	DS	US	US Travel Blank	DS	US	DS
Dissolved Metals and Non-Metals														
Aluminum	mg/L	0.0010	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Barium	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/L	0.010	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/L	0.0000050	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	0.050	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/L	0.00050	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/L	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-
Copper	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-	-
Iron	mg/L	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Lead	mg/L	0.00005	Variable ^e	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/L	0.000005	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	mg/L	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-
Nickel	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.000050	-	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.00001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	mg/L	0.0002	0.25	-	-	-	-	-	-	-	-	-	-	-
Thallium	mg/L	0.000010	-	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	mg/L	0.000010	-	-	-	-	0.000010	-	-	-	-	-	-	-
Vanadium	mg/L	0.00050	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/L	0.0010	Variable ^e	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous (Water)														
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2019				2020						
				22-Jun-19	22-Jun-19	09-Aug-19	09-Aug-19	22-Jun-20	22-Jun-20	21-Jul-20	21-Jul-20	13-Sep-20	13-Sep-20	13-Sep-20
				US	DS	US	DS	US	DS	US	DS	US	DS	DS Field Duplicate
In Situ Parameters														
Temperature	°C	-	-	2.7	2.6	15.8	15.2	2.6	2.0	13.0	12.1	4.17	4.00	4.00
Specific Conductance	µS/cm	-	-	0.0691	0.0695	0.0894	0.0852	0.0578	0.0593	0.0944	0.0921	126.4	152.1	152.1
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	13.4	13.8	11.54	11.45	12.16	12.40	12.40
Dissolved Oxygen	%	-	-	97.6	97.3	105.2	105	98.7	99.3	108.4	104.9	94.5	94.8	94.8
pH	pH units	-	6.5 - 9.0	7.97	8.08	8.45	8.17	7.74	7.64	7.95	7.91	7.92	7.97	7.97
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters														
pH	pH units	0.1	6.5 - 9.0	7.64	7.68	7.63	7.75	7.52	7.49	7.75	7.81	7.83	7.81	7.82
Conductivity	µS/cm	1	-	-	-	-	-	60	62	98	98	133	165	162
Turbidity	NTU	0.1	-	0.57	0.66	0.61	0.68	1.33	0.86	1.19	1.13	0.24	2.14	4.24
Hardness	mg/L as CaCO₃	-	-	36.9	37.5	36.6	37.9	26.2	27.1	39.6	39.0	46	52	52
Total Suspended Solids	mg/L	1	Variable ^g	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	5
Total Dissolved Solids	mg/L	19 -20	-	47	53	41	43	54	55	64	58	70	78	89
Dissolved Anions														
Alkalinity	mg/L as CaCO₃	2.0	-	37	37	38	38	24	25	36	36	41	41	46
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	4.42	4.51	4.05	4.66	3.43	3.62	6.50	6.50	13.0	20.8	19.8
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients														
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate	mg/L N	0.02	3.0	0.027	0.025	0.025	0.027	<0.020	0.02	0.23	<0.020	<0.020	0.032	0.040
Nitrate + Nitrite	mg/L N	-	-	0.027	0.025	0.025	0.027	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Total Phosphorus	mg/L	0.002	0.01	0.0043	0.0037	<0.0030	<0.0030	0.013	0.008	<0.0030	0.004	0.0033	<0.0030	0.0045
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds														
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	2.45	2.43	2.15	2.07	3.46	3.21	2.64	2.96	2.92	3.82	2.66
Total Organic Carbon	mg/L	0.5	-	2.81	2.92	2.33	2.83	3.77	3.87	3.02	3.15	4.16	3.76	4.72
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-	<0.15	<0.15	<0.15
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2019				2020						
				22-Jun-19	22-Jun-19	09-Aug-19	09-Aug-19	22-Jun-20	22-Jun-20	21-Jul-20	21-Jul-20	13-Sep-20	13-Sep-20	13-Sep-20
				US	DS	US	DS	US	DS	US	DS	US	DS	DS Field Duplicate
Total Metals and Non-Metals														
Aluminum	mg/L	0.003	Variable ^f	0.0202	0.0391	0.0378	0.0367	0.0375	0.0436	0.0423	0.0452	0.0156	0.094	0.165
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.0001	-	0.00446	0.00475	0.00526	0.00571	0.00352	0.00376	0.00540	0.00502	0.00531	0.00656	0.00757
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	7.19	7.19	7.34	8.00	5.26	5.17	7.98	8.00	8.77	10.2	9.92
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000016	0.000027
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0010	<0.0010	<0.0010	<0.0010	0.0005	0.001	0.0010	0.001	0.00084	0.00115	0.00123
Iron	mg/L	0.01	0.300	0.035	0.061	0.045	0.041	0.057	0.058	0.056	0.049	0.025	0.113	0.175
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.000050	0.000055	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000117	0.000193
Lithium	mg/L	0.001	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011
Magnesium	mg/L	0.005	-	4.40	4.37	4.09	4.46	3.20	3.33	4.73	4.69	5.88	6.74	6.79
Manganese	mg/L	0.0001	Variable ^c	0.00383	0.00461	0.00179	0.00183	0.00505	0.00556	0.00284	0.00272	0.00157	0.00581	0.00838
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	0.073	0.000085	0.000073	0.000106	0.000115	0.000058	0.000071	0.000094	0.000102	0.000094	0.000134	0.000136
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00057	0.00059
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.628	0.628	0.585	0.624	0.601	0.609	0.682	0.666	0.751	0.900	0.969
Rubidium	mg/L	0.0002	-	0.00090	0.00102	0.00102	0.00131	0.00081	0.00084	0.00114	0.00110	0.00111	0.00150	0.00182
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.440	0.500	0.48	0.5	0.450	0.430	0.620	0.610	0.52	0.70	0.83
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	2.34	2.21	1.95	1.99	1.54	1.74	3.36	3.37	6.65	9.95	9.42
Strontium	mg/L	0.0002	0.25	0.0072	0.0072	0.0079	0.0086	0.0048	0.0051	0.0090	0.0087	0.0133	0.0188	0.0181
Sulfur	mg/L	0.5	-	<0.50	<0.50	<0.50	<0.50	0.56	<0.50	<0.50	0.56	0.71	1.11	1.13
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	0.00086	0.00217	0.00184	0.00149	0.0012	0.00166	0.00199	0.00169	<0.00060	0.00478	0.00833
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000262	0.000250	0.000333	0.000347	0.000235	0.000279	0.000460	0.000424	0.000537	0.000684	0.000754
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0030
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00022

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date											
				2019				2020							
				22-Jun-19	22-Jun-19	09-Aug-19	09-Aug-19	22-Jun-20	22-Jun-20	21-Jul-20	21-Jul-20	13-Sep-20	13-Sep-20	13-Sep-20	
				US	DS	US	DS	US	DS	US	DS	US	DS	DS Field Duplicate	
Dissolved Metals and Non-Metals															
Aluminum	mg/L	0.0010	-	-	-	-	-	0.013	0.019	0.015	0.015	<0.0050	0.0196	0.0136	
Arsenic	mg/L	0.00010	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Barium	mg/L	0.00010	-	-	-	-	-	0.003	0.004	0.005	0.005	0.00541	0.00603	0.00590	
Boron	mg/L	0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Cadmium	mg/L	0.0000050	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Calcium	mg/L	0.050	-	-	-	-	-	5.120	5.170	7.800	7.540	9.16	10.2	10.1	
Chromium	mg/L	0.00050	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Cobalt	mg/L	0.0001	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Copper	mg/L	0.0002	-	-	-	-	-	0.001	0.001	0.001	0.001	0.0008	0.0009	0.0008	
Iron	mg/L	0.01	-	-	-	-	-	0.028	0.026	0.016	0.019	<0.010	0.023	0.017	
Lead	mg/L	0.00005	Variable ^e	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Magnesium	mg/L	0.005	-	-	-	-	-	3.270	3.440	4.890	4.890	5.64	6.46	6.48	
Manganese	mg/L	0.0001	-	-	-	-	-	0.004	0.004	0.002	0.002	<0.00050	0.00282	0.00261	
Mercury	mg/L	0.000005	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum	mg/L	0.00005	-	-	-	-	-	0.000	0.000	0.000	0.000	0.000113	0.000128	0.000126	
Nickel	mg/L	0.0005	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	mg/L	0.05	-	-	-	-	-	0.586	0.603	0.684	0.680	0.782	0.913	0.934	
Selenium	mg/L	0.000050	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Silver	mg/L	0.00001	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Sodium	mg/L	0.05	-	-	-	-	-	1.590	1.890	3.370	3.390	6.24	9.34	9.41	
Strontium	mg/L	0.0002	0.25	-	-	-	-	0.005	0.005	0.009	0.009	0.01500	0.02020	0.02070	
Thallium	mg/L	0.000010	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Tin	mg/L	0.00010	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	<0.00010	
Uranium	mg/L	0.000010	-	-	-	-	-	0.000	0.000	0.000	0.000	0.000519	0.000618	0.000639	
Vanadium	mg/L	0.00050	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Zinc	mg/L	0.0010	Variable ^e	-	-	-	-	0.0010	0.0010	<0.0010	0.0015	<0.0010	0.0014	<0.0010	
Miscellaneous (Water)															
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-	

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date										
				2021				2022						
				13-Jun-21	13-Jun-21	17-Aug-21	17-Aug-21	19-Jun-22	19-Jun-22	19-Jun-22	29-Aug-22	29-Aug-22	29-Aug-22	
				DS	US	DS	US	DS	US	US Field Duplicate	DS	US	US Field Duplicate	
In Situ Parameters														
Temperature	°C	-	-	2.0	4.2	7.6	8.2	2.7	4.4	-	7.3	7.4	-	
Specific Conductance	µS/cm	-	-	68.9	62	95.4	96.7	90.7	36.6	-	86.5	89.3	-	
Dissolved Oxygen	mg/L	-	<9.5	13.52	13.23	12.04	11.83	13.58	12.65	-	11.40	11.83	-	
Dissolved Oxygen	%	-	-	99.1	102.6	102.8	102.6	99.9	97.6	-	95.6	98.1	-	
pH	pH units	-	6.5 - 9.0	7.55	7.83	8.45	8.20	7.46	7.83	-	7.96	7.95	-	
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-	
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-	
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-	-	-	
Physical Parameters														
pH	pH units	0.1	6.5 - 9.0	7.60	7.55	7.54	7.81	7.44	7.26	7.82	7.53	7.55	7.52	
Conductivity	µS/cm	1	-	71.4	65.1	101	107	90.2	39.8	38.2	86.9	88.6	88.8	
Turbidity	NTU	0.1	-	1.66	1.56	0.46	0.46	1.56	2.59	2.86	<1.0	<1.0	<1.0	
Hardness	mg/L as CaCO₃	-	-	28.5	26.6	40.6	42.8	36.3	18	17.3	37.6	39.7	38.2	
Total Suspended Solids	mg/L	1	Variable ^g	1.5	2.1	1.0	<2.0	3.1	3.3	<2.0	<3.0	<3.0	<3.0	
Total Dissolved Solids	mg/L	19-20	-	43	45	57	58	50	<10	38	46	48	47	
Dissolved Anions														
Alkalinity	mg/L as CaCO₃	2.0	-	39.0	31.6	40.4	41.5	33.6	17.5	16.8	23.1	24.4	32.9	
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Chloride	mg/L	0.5	120	5.17	4.44	6.96	6.56	7.07	1.45	1.06	6.03	5.9	5.90	
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Nutrients														
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-	
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Nitrate	mg/L N	0.02	3.0	0.032	0.031	<0.020	0.039	0.023	<0.020	0.020	<0.020	<0.020	<0.020	
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-	
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	<0.010	<0.010	
Total Phosphorus	mg/L	0.002	0.01	0.0100	0.0062	0.0035	<0.0030	<0.0030	0.0041	0.0039	<0.0030	<0.0030	<0.0030	
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Organic Compounds														
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-	
Dissolved Organic Carbon	mg/L	0.5	-	3.71	4.18	2.75	3.00	3.00	3.12	2.46	2.58	2.40	2.34	
Total Organic Carbon	mg/L	0.5	-	4.02	4.15	5.30	5.36	3.01	2.84	3.39	2.34	2.44	2.34	
Total Kjeldahl Nitrogen	mg/L	-	-	0.240	0.180	0.110	0.110	0.179	0.184	0.179	0.108	0.151	0.092	
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-	
Pheophytin-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-	

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2021				2022					
				13-Jun-21	13-Jun-21	17-Aug-21	17-Aug-21	19-Jun-22	19-Jun-22	19-Jun-22	29-Aug-22	29-Aug-22	29-Aug-22
				DS	US	DS	US	DS	US	US Field Duplicate	DS	US	US Field Duplicate
Total Metals and Non-Metals													
Aluminum	mg/L	0.003	Variable ^f	0.0416	0.0406	0.0214	0.0189	0.0499	0.0804	0.0781	0.0142	0.0092	0.0152
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.0001	-	0.00422	0.00392	0.00498	0.00530	0.00480	0.00252	0.0025	0.00438	0.00439	0.00439
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	5.64	5.37	7.81	8.12	6.96	3.67	3.48	6.73	7.32	6.87
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000012	0.000011	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	0.0001	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	0.00065	0.00063	0.00079	0.00089	0.00077	<0.00050	<0.00050	0.00068	0.00075	0.00077
Iron	mg/L	0.01	0.300	0.050	0.063	0.029	0.023	0.054	0.111	0.109	0.025	0.01	0.025
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.000050	<0.000050	<0.000050	<0.000050	0.000056	0.000065	0.000068	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.001	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	0.005	-	3.62	3.39	4.96	5.12	4.92	2.38	2.40	5.05	5.24	4.94
Manganese	mg/L	0.0001	Variable ^c	0.00399	0.00460	0.00159	0.00117	0.00456	0.0149	0.015	0.00282	<0.00050	0.00165
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	0.073	0.000080	0.000067	0.000095	0.000089	0.000090	<0.000050	<0.000050	0.000092	0.000097	0.000086
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.866	0.837	0.711	0.736	0.774	0.531	0.496	0.655	0.68	0.659
Rubidium	mg/L	0.0002	-	0.00115	0.00106	0.00109	0.00113	0.00111	0.00078	0.00079	0.00101	0.001	0.00103
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.50	0.51	0.51	0.55	0.42	0.42	0.40	0.31	0.33	0.34
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	2.45	2.15	3.65	3.55	3.70	0.748	0.663	3.47	3.47	3.27
Strontium	mg/L	0.0002	0.25	0.0068	0.0061	0.0094	0.0098	0.0101	0.0030	0.0028	0.0093	0.0094	0.0090
Sulfur	mg/L	0.5	-	<0.50	<0.50	0.68	0.94	0.72	<0.50	<0.50	0.51	<0.50	<0.50
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	0.00138	<0.0020	0.00062	0.00052	0.00170	0.00275	0.00248	0.00036	<0.00030	0.00043
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000333	0.000279	0.000446	0.000455	0.000415	0.000086	0.000076	0.00039	0.000328	0.00041
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2021				2022					
				13-Jun-21	13-Jun-21	17-Aug-21	17-Aug-21	19-Jun-22	19-Jun-22	19-Jun-22	29-Aug-22	29-Aug-22	29-Aug-22
				DS	US	DS	US	DS	US	US Field Duplicate	DS	US	US Field Duplicate
Dissolved Metals and Non-Metals													
Aluminum	mg/L	0.0010	-	0.0165	0.0144	0.0106	0.0068	0.0081	0.0133	0.0113	<0.0050	0.0134	<0.0050
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.00010	-	0.00401	0.00366	0.00522	0.00547	0.00464	0.00233	0.0022	0.00428	0.00451	0.00435
Boron	mg/L	0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.050	-	5.53	5.19	7.87	8.31	7.09	3.66	3.53	7.18000	7.3	7.13000
Chromium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0002	-	0.00061	0.00057	0.00077	0.00085	0.00064	0.00023	0.00022	0.00	0.0007	0.00
Iron	mg/L	0.01	-	0.024	0.026	<0.010	<0.010	0.012	0.035	0.033	<0.010	0.021	<0.010
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	0.005	-	3.56	3.31	5.09	5.36	4.51	2.15	2.05	4.780000	5.21	4.950000
Manganese	mg/L	0.0001	-	0.00512	0.00590	<0.00050	<0.00050	0.00331	0.01220	0.0125	0.00088	0.00163	<0.00050
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	-	0.000075	0.000068	0.000083	0.000090	0.000082	<0.000050	<0.000050	0.000077	0.000088	0.000076
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.848	0.802	0.745	0.788	0.757	0.499	0.467	0.66	0.688	0.67
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silver	mg/L	0.00001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	2.41	2.10	3.73	3.67	3.74	0.720	0.613	3.45	3.47	3.37
Strontium	mg/L	0.0002	0.25	0.0065	0.0058	0.0096	0.0098	0.0095	0.0029	0.0026	0.00870	0.0089	0.00900
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.000010	-	0.000318	0.000279	0.000424	0.000433	0.000409	0.000072	0.000058	0.000366	0.000368	0.000378
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.0010	Variable ^e	<0.0010	<0.0010	0.0058	<0.0010	<0.0010	0.0016	0.0012	<0.0010	<0.0010	<0.0010
Miscellaneous (Water)													
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	<0.0020	<0.0020	<0.0020

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	20-Aug-23	20-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
In Situ Parameters													
Temperature	°C	-	-	2.1	1.0	7.5	15.4	7.0	7.2	4.0	5.6	8.3	9.2
Specific Conductance	µS/cm	-	-	56.5	32.5	45.4	53.9	78.5	77.2	47.2	41.6	77.0	86.4
Dissolved Oxygen	mg/L	-	<9.5	12.81	12.68	12.07	12.06	11.55	11.65	13.20	13.20	11.38	11.40
Dissolved Oxygen	%	-	-	96.3	92.3	103.0	123.7	98.3	99.5	101.0	105.4	96.9	98.8
pH	pH units	-	6.5 - 9.0	7.75	7.89	7.73	7.94	8.20	7.80	7.49	7.31	7.83	7.83
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters													
pH	pH units	0.1	6.5 - 9.0	7.38	7.18	7.68	7.56	7.76	7.74	7.30	7.22	7.98	7.89
Conductivity	µS/cm	1	-	57.6	32.8	48.5	55.1	83.6	80.7	51.1	45.4	83.7	91.5
Turbidity	NTU	0.1	-	1.97	3	2.98	3.47	1.1	7.86	4.57	5.23	1.09	0.65
Hardness	mg/L as CaCO₃	-	-	24.58	14.41	20.62	26.37	35.66	34.59	22.8	20.1	36.5	38.7
Total Suspended Solids	mg/L	1	Variable ^g	14.1	10.8	<1.0	4.1	<1.0	24.2	2.7	27.3	< 1.0	< 1.0
Total Dissolved Solids	mg/L	19 -20	-	34	20	33	44	42	47	43	38	51	55
Dissolved Anions													
Alkalinity	mg/L as CaCO₃	2.0	-	35.5	14.6	21.6	24.6	37.2	45.7	21.6	18.9	35.1	34.9
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	3.3	1.03	2.36	1.88	6.03	5.19	2.37	1.77	3.82	5.88
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients													
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Nitrate	mg/L N	0.02	3.0	0.028	<0.020	<0.020	0.034	0.035	<0.020	< 0.020	0.027	< 0.020	0.052
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.0050	0.0072	<0.0050	<0.0050	0.0066	0.0131	0.0065	0.0106	0.0156	0.0067
Total Phosphorus	mg/L	0.002	0.01	0.0055	0.0087	0.0058	0.0162	0.0058	0.0074	0.0086	0.0050	0.0043	0.0035
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds													
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	3.11	3.2	1.6	2.09	1.92	16.8	3.01	3.41	2.47	2.39
Total Organic Carbon	mg/L	0.5	-	3.32	2.92	2.12	2.36	2.04	14.6	2.65	2.64	2.50	2.20
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	20-Aug-23	20-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
Total Metals and Non-Metals													
Aluminum	mg/L	0.003	Variable ^f	0.0989	0.167	0.0694	0.045	0.0256	0.0355	0.153	0.147	0.0245	0.0205
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Barium	mg/L	0.0001	-	0.00373	0.0032	0.00327	0.00392	0.00447	0.00434	0.00406	0.00399	0.00452	0.00528
Beryllium	mg/L	0.00002	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Calcium	mg/L	0.05	-	4.52	3	3.9	4.86	6.7	6.41	4.48	4.04	7.19	7.69
Cesium	mg/L	0.00001	-	0.000017	0.000035	0.000011	<0.000010	<0.000010	<0.000010	0.000022	0.000023	< 0.000010	< 0.000010
Chromium	mg/L	0.0005	-	<0.00050	0.00072	0.00148	<0.00050	<0.00050	<0.00050	0.00099	0.00056	< 0.00050	< 0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	0.00019	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	0.00066	0.00067	0.00061	0.00078	0.00081	0.0008	0.00093	0.00099	0.00082	0.00076
Iron	mg/L	0.01	0.300	0.11	0.219	0.095	0.065	0.058	0.069	0.177	0.166	0.037	0.024
Lead	mg/L	0.00005	0.001 - 0.007 ^c	0.000116	0.000149	0.000068	<0.000050	<0.000050	<0.000050	0.000120	0.000117	< 0.000050	< 0.000050
Lithium	mg/L	0.001	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Magnesium	mg/L	0.005	-	3.12	1.8	2.47	2.98	4.37	4.22	3.09	2.80	4.54	4.93
Manganese	mg/L	0.0001	Variable ^c	0.0062	0.0151	0.00355	0.00284	0.00433	0.00468	0.00640	0.00696	0.00217	0.00249
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Molybdenum	mg/L	0.00005	0.073	0.000068	<0.000050	0.000053	0.000084	0.000082	0.00008	0.000057	0.000054	0.000096	0.000102
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	0.00209	<0.00050	<0.00050	0.00059	0.00080	0.00050	< 0.00050	< 0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	mg/L	0.05	-	0.718	0.492	0.428	0.551	0.624	0.617	0.636	0.624	0.657	0.711
Rubidium	mg/L	0.0002	-	0.00124	0.00154	0.00087	0.00098	0.00099	0.00105	0.00130	0.00123	0.00100	0.00120
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Silicon	mg/L	0.1	-	0.39	0.57	0.41	0.54	0.45	0.47	0.60	0.60	0.47	0.43
Silver	mg/L	0.00001	0.25	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Sodium	mg/L	0.05	-	1.72	0.592	1.24	0.971	2.76	2.78	1.40	1.22	2.24	2.42
Strontium	mg/L	0.0002	0.25	0.00547	0.0025	0.00394	0.00423	0.00792	0.00748	0.00465	0.00406	0.00759	0.00889
Sulfur	mg/L	0.5	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.50	< 0.50	< 0.50	< 0.50
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00040	< 0.00010
Titanium	mg/L	0.0003	-	0.004	0.0104	0.00291	0.00141	0.00097	0.00152	0.00723	0.00668	0.00086	0.00044
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Uranium	mg/L	0.00001	0.015	0.000298	0.000114	0.000197	0.000187	0.000329	0.000307	0.000237	0.000204	0.000329	0.000429
Vanadium	mg/L	0.0005	0.12	<0.00050	0.0006	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030
Zirconium	mg/L	0.0002	-	<0.00020	0.00048	<0.00020	<0.00020	<0.00020	<0.00020	< 0.00020	0.00022	< 0.00020	< 0.00020

Table 2.7 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-100 (CV217)

Parameters	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				25-Jun-23	25-Jun-23	16-Jul-23	16-Jul-23	20-Aug-23	20-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
Dissolved Metals and Non-Metals													
Aluminum	mg/L	0.0010	-	0.0197	0.0267	0.013	0.0184	0.0064	0.011	0.0217	0.022	0.0055	0.0085
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Barium	mg/L	0.00010	-	0.0032	0.00208	0.00291	0.00402	0.00424	0.00402	0.00312	0.00291	0.00409	0.00463
Boron	mg/L	0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Calcium	mg/L	0.050	-	4.52	2.99	4.08	5.4	6.71	6.53	4.26	3.85	6.88	7.32
Chromium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Copper	mg/L	0.0002	-	0.00066	0.00037	0.00052	0.00075	0.00067	0.00077	0.00056	0.00055	0.00074	0.00075
Iron	mg/L	0.01	-	0.028	0.042	0.019	0.025	0.019	0.022	0.024	0.027	0.011	< 0.010
Lead	mg/L	0.00005	Variable ^e	<0.000050	0.000051	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Magnesium	mg/L	0.005	-	3.2	1.67	2.51	3.1	4.55	4.4	2.96	2.54	4.69	4.96
Manganese	mg/L	0.0001	-	0.00422	0.0106	0.00142	0.00176	0.00171	0.00141	0.00191	0.00232	0.00040	0.00108
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Molybdenum	mg/L	0.00005	-	0.000067	0.000051	<0.000050	0.000131	0.000083	0.000078	0.000055	0.000051	0.000077	0.000099
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	mg/L	0.05	-	0.661	0.431	0.474	0.658	0.623	0.621	0.573	0.548	0.600	0.638
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Silver	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Sodium	mg/L	0.05	-	1.7	0.567	1.29	0.954	2.86	2.77	1.36	1.11	2.27	2.35
Strontium	mg/L	0.0002	0.25	0.00547	0.00228	0.00426	0.00481	0.00761	0.0075	0.00442	0.00375	0.00705	0.0083
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00030	< 0.00010
Uranium	mg/L	0.000010	-	0.000245	0.000083	0.000179	0.000197	0.000291	0.000293	0.000191	0.000163	0.000297	0.000376
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Zinc	mg/L	0.0010	Variable ^e	<0.0010	0.0018	<0.0010	<0.0010	<0.0010	<0.0010	< 0.0010	0.0010	< 0.0010	0.0012
Miscellaneous (Water)													
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date							
				2005			2006			2015	
				07-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	29-Jul-06	10-Sep-06	12-Aug-15 US	12-Aug-15 DS
In Situ Parameters											
Temperature	°C	-	-	3.76	9.54	7.0	1.99	7.11	4.35	6.8	6.9
Specific Conductance	µS/cm	-	-	0.019	0.079	0.082	0.075	0.076	0.095	0.05	0.05
Dissolved Oxygen	mg/L	-	<9.5	10.4	10.91	11.71	12.8	13.55	-	-	-
Dissolved Oxygen	%	-	-	-	-	-	-	-	-	104.30	103.00
pH	pH units	-	6.5 - 9.0	8.07	7.58	7.02	7.55	7.51	7.88	8.58	8.51
Wetted Width	m	-	-	-	-	-	6	17	5	1.5	1.5
Average Depth	m	-	-	-	-	-	0.4	0.9	0.3	0.25	0.25
Flow Rate	m³/s	-	-	-	-	-	1.1	3.64	0.39	-	-
Physical Parameters											
pH	pH units	0.1	6.5 - 9.0	-	-	-	7.40	6.95	6.95	8.34	8.29
Conductivity	µS/cm	1	-	26	88	82	84	78	119	-	-
Turbidity	NTU	0.1	-	0.42	3.64	1.93	0.5	2.3	4.9	0.16	0.27
Hardness	mg/L as CaCO₃	-	-	7.14	43.6	43.4	47	41	52	133	136
Total Suspended Solids	mg/L	1.0 - 1.1	Variable ^B	-	-	-	-	-	-	<2	<2
Total Dissolved Solids	mg/L	19 - 20	-	<30	51	<30	55	51	77	146 *	139 *
Dissolved Anions											
Alkalinity	mg/L as CaCO₃	2.0	-	5	43	41	41	40	53	135	141
Bromide	mg/L	-	-	<0.3	<0.3	<0.3	<0.05	<0.05	<0.05	-	-
Chloride	mg/L	0.5	120	1.3	0.6	0.7	1	<1	4	5.18	5.26
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	1.2	<0.5	0.5	2	2	4	5.54	5.38
Nutrients											
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	0.7	0.4	0.6	<0.02	<0.02	<0.02	0.24	0.29
Nitrite	mg/L N	0.01	0.060	<0.06	<0.06	<0.06	<0.005	0.017	0.009	-	-
Nitrate	mg/L N	0.02	3.0	0.12	<0.05	<0.05	<0.10	<0.10	<0.10	0.03	0.03
Nitrate + Nitrite	mg/L N	-	-	0.12	<0.06	<0.06	<0.10	<0.10	<0.10	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	-	-	-	-	-	-	<0.050	<0.050
Total Phosphorus	mg/L	0.002	0.01	0.02	<0.02	<0.10	<0.01	<0.01	0.01	<0.0030	<0.0030
Dissolved Phosphorus	mg/L	-	-	<0.02	<0.02	<0.10	-	-	-	-	-
Organic Compounds											
Phenols	mg/L	-	0.004	0.001	<0.001	<0.001	<0.001	<0.001	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	-	-	-	-	-	-	2.3	2.3
Total Organic Carbon	mg/L	0.5	-	-	-	-	-	-	-	2.3	2.4
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	0.24	0.29
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m₃	-	-	-	-	-	-	-	-	-	-

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date							
				2005			2006			2015	
				07-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	29-Jul-06	10-Sep-06	12-Aug-15	12-Aug-15
										US	DS
Total Metals and Non-Metals											
Aluminum	mg/L	0.003	Variable ^f	0.017	0.075	0.073	0.010	0.072	0.153	<0.010	0.018
Antimony	mg/L	0.0001	-	<0.0004	<0.0004	<0.0004	-	-	-	-	-
Arsenic	mg/L	0.0001	0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.00010	<0.00010
Barium	mg/L	0.0001	-	<0.001	0.004	0.004	<0.01	<0.01	<0.01	-	-
Beryllium	mg/L	0.00002	-	<0.005	<0.005	<0.005	-	-	-	-	-
Bismuth	mg/L	0.00005	-	<0.0003	<0.0003	<0.0003	-	-	-	-	-
Boron	mg/L	0.01	1.5	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
Cadmium	mg/L	0.000005	Variable ^c	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010
Calcium	mg/L	0.05	-	1.43	9.01	8.72	8.0	8.0	12	29.9	32.2
Cesium	mg/L	0.00001	-	-	-	-	-	-	-	-	-
Chromium	mg/L	0.0005	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Cobalt	mg/L	0.0001	Variable ^c	<0.0003	<0.0003	<0.0003	<0.0002	<0.0002	<0.0002	-	-
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0008	0.0009	<0.0008	<0.001	<0.001	<0.001	<0.0010	<0.0010
Iron	mg/L	0.01	0.300	<0.02	0.05	0.06	0.03	0.05	0.08	<0.050	<0.050
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.0002	0.0004	<0.0002	<0.001	<0.001	<0.001	<0.00010	<0.00010
Lithium	mg/L	0.001	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.005	-	0.868	5.12	5.24	5	5	7	16.4	17.4
Manganese	mg/L	0.0001	Variable ^c	0.0097	0.0024	0.0014	<0.01	<0.01	<0.01	0.00054	0.00335
Mercury	mg/L	0.000005	0.000026	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	0.073	<0.0003	<0.0003	<0.0003	<0.005	<0.005	<0.005	<0.00050	<0.00050
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.0010	<0.0010
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.77	0.48	0.51	0.50	0.51	0.50	0.565	0.649
Rubidium	mg/L	0.0002	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.00005	0.001	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.000050	<0.000050
Silicon	mg/L	0.1	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.00001	0.25	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Sodium	mg/L	0.05	-	0.43	0.51	0.48	0.57	0.48	1.61	5.22	5.33
Strontium	mg/L	0.0002	0.25	0.0011	0.0049	0.0048	0.005	0.005	0.008	-	-
Sulphur	mg/L	0.5	-	-	-	-	-	-	-	-	-
Tellurium	mg/L	0.0002	-	-	-	-	-	-	-	-	-
Thallium	mg/L	0.00001	0.0008	<0.0002	<0.0002	<0.0002	-	-	-	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	-	-	-	-	-	-	-	-
Tin	mg/L	0.0001	-	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01	-	-
Titanium	mg/L	0.0003	-	<0.003	<0.003	<0.003	-	-	-	-	-
Tungsten	mg/L	0.0001	-	-	-	-	-	-	-	-	-
Uranium	mg/L	0.00001	0.015	-	-	-	-	-	-	0.000941	0.000943
Vanadium	mg/L	0.0005	0.12	<0.0009	<0.0009	<0.0009	<0.001	<0.001	<0.001	-	-
Zinc	mg/L	0.003	0.03	0.0040	0.0010	0.0020	<0.01	<0.01	<0.01	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	-	-	-	-	-	-	-	-

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date							
				2005			2006			2015	
				07-Jun-05	06-Aug-05	09-Sep-05	13-Jun-06	29-Jul-06	10-Sep-06	12-Aug-15	12-Aug-15
										US	DS
Dissolved Metals and Non-Metals											
Aluminum	mg/L	0.0010	-	0.010	0.009	0.007	<0.005	<0.005	<0.005	<0.0050	<0.0050
Arsenic	mg/L	0.00010	-	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.00010	<0.00010
Barium	mg/L	0.00010	-	<0.001	0.003	0.004	<0.01	<0.01	<0.01	-	-
Boron	mg/L	0.010	-	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	-	-
Cadmium	mg/L	0.0000050	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.000010	<0.000010
Calcium	mg/L	0.050	-	1.54	9.19	8.14	9	8	11	28.0	28.9
Chromium	mg/L	0.0005	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Cobalt	mg/L	0.0001	-	<0.0003	<0.0003	<0.0003	<0.0002	<0.0002	<0.0002	-	-
Copper	mg/L	0.0002	-	<0.0008	<0.0008	<0.0008	<0.001	<0.001	<0.001	0.00066	0.00063
Iron	mg/L	0.01	-	<0.02	0.02	<0.02	<0.03	<0.03	<0.03	<0.010	<0.010
Lead	mg/L	0.00005	Variable ^e	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.000050	<0.000050
Magnesium	mg/L	0.005	-	0.933	5.30	4.87	6	5	6	15.4	15.6
Manganese	mg/L	0.0001	-	0.0092	0.0007	<0.0007	<0.01	<0.01	<0.01	<0.00050	0.00275
Mercury	mg/L	0.000005	-	-	-	-	-	-	-	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	-	<0.0003	<0.0003	<0.0003	<0.005	<0.005	<0.005	0.000093	0.0001
Nickel	mg/L	0.0005	-	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	0.83	0.51	0.49	0.52	0.50	0.50	0.577	0.635
Selenium	mg/L	0.000050	-	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.000050	<0.000050
Silver	mg/L	0.00001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Sodium	mg/L	0.05	-	0.47	0.53	0.47	0.58	0.50	1.64	5.04	4.95
Strontium	mg/L	0.0002	0.25	0.0011	0.0045	0.0044	0.005	0.005	0.008	-	-
Thallium	mg/L	0.000010	-	<0.0002	<0.0002	<0.0002	-	-	-	<0.000010	<0.000010
Tin	mg/L	0.00010	-	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01	-	-
Uranium	mg/L	0.000010	-	-	-	-	-	-	-	0.000883	0.00088
Vanadium	mg/L	0.00050	-	<0.0009	0.0013	<0.0009	<0.001	<0.001	<0.001	-	-
Zinc	mg/L	0.0010	Variable ^e	0.003	0.003	0.002	<0.01	<0.01	<0.01	<0.0010	0.0019
Miscellaneous (Water)											
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date									
				2016				2017		2018			
				29-Jun-16 DS	29-Jun-16 US	25-Aug-16 DS	25-Aug-16 US	29-Jun-17 US	29-Jun-17 DS	04-Jul-18 US	04-Jul-18 DS	31-Aug-18 US	31-Aug-18 DS
In Situ Parameters													
Temperature	°C	-	-	5.1	5.0	4.5	5.1	1.8	3.5	2.4	2.5	3.6	3.9
Specific Conductance	µS/cm	-	-	0.112	0.114	0.371	0.367	0.116	0.105	0.132	0.134	0.2278	0.2352
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	104.9	105.8	99.3	103.2	101.8	103.6	96.8	96.3	101.5	98.3
pH	pH units	-	6.5 - 9.0	7.75	7.84	7.91	7.97	7.41	7.68	8.02	7.83	8.33	7.29
Wetted Width	m	-	-	4.8	4.8	-	-	5.9	4.4	1.4	2.7	1.45	1.6
Average Depth	m	-	-	0.2	0.2	-	-	0.17	0.45	0.22	0.1	0.04	0.1
Flow Rate	m³/s	-	-	-	-	-	-	0.71213	0.5148	0.111	0.097	0.012	0.021
Physical Parameters													
pH	pH units	0.1	6.5 - 9.0	7.84	7.91	8.15	8.30	7.90	7.91	7.97	8.03	8.45	8.37
Conductivity	µS/cm	1	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	0.1	-	0.41	0.39	0.34	0.22	0.49	0.42	0.73	0.84	0.20	0.43
Hardness	mg/L as CaCO₃	-	-	52	52	168	169	43	43	68	69	130	139
Total Suspended Solids	mg/L	1.0 - 1.1	Variable ⁶	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids	mg/L	19 - 20	-	45	45	183	183	42	40	75	65	130	155
Dissolved Anions													
Alkalinity	mg/L as CaCO₃	2.0	-	51	53	152	149	41	42	49	65	126	131
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	0.8	0.8	16.5	18.0	1.04	1.07	1.26	1.39	6.98	7.41
Fluoride	mg/L	-	-	0.0	0.0	0.1	0.1	0.022	0.021	0.037	0.037	0.069	0.064
Sulfate	mg/L	-	-	0.8	0.6	12.2	13.7	0.46	0.58	0.91	0.91	7.38	6.48
Nutrients													
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	<0.15	<0.15	<0.15	<0.15	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	-	-	-	-	-	-	-	-	-	-
Nitrate	mg/L N	0.02	3.0	<0.020	<0.020	0.07	0.08	<0.020	<0.020	0.02	<0.020	<0.020	<0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	0.07	0.07	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	-	-
Total Phosphorus	mg/L	0.002	0.01	<0.0030	0.01	0.00	0.00	0.0086	0.0082	0.0060	0.0046	<0.0030	<0.0030
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds													
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	<1.0	<1.0	2.0	2.0	1.46	1.57	1.98	1.90	2.29	2.35
Total Organic Carbon	mg/L	0.5	-	<1.0	<1.0	2.2	2.1	1.64	1.76	2.38	2.27	2.70	4.32
Total Kjeldahl Nitrogen	mg/L	-	-	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.15	<0.15
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date									
				2016				2017		2018			
				29-Jun-16	29-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17	04-Jul-18	04-Jul-18	31-Aug-18	31-Aug-18
				DS	US	DS	US	US	DS	US	DS	US	DS
Total Metals and Non-Metals													
Aluminum	mg/L	0.003	Variable ^f	0.022	0.015	0.011	<0.010	0.0214	0.0225	0.0219	0.0195	0.006	0.0137
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	0.0001	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.0001	-	0.00197	0.00176	0.00778	0.00702	0.00165	0.0017	0.00228	0.00236	0.00485	0.00602
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	0.011	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	10.9	10.8	35.3	35.8	8.82	8.83	14.7	14.8	28.4	30.1
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	0.00248	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Iron	mg/L	0.01	0.300	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.017	0.016	<0.010	0.023
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.001	-	<0.0010	0.0013	0.0041	0.0044	<0.0010	<0.0010	0.0015	0.0015	0.0025	0.0024
Magnesium	mg/L	0.005	-	5.94	5.95	19.3	19.3	4.99	5.12	7.71	7.78	14.4	15.4
Manganese	mg/L	0.0001	Variable ^c	0.00126	<0.00050	0.00526	0.0008	0.00062	0.00087	0.00052	0.00074	<0.00050	0.00383
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum	mg/L	0.00005	0.073	<0.000050	<0.000050	0.000109	0.000112	<0.000050	<0.000050	0.000057	0.000052	0.000102	0.000151
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.297	0.269	0.818	0.731	0.308	0.317	0.294	0.31	0.584	0.7
Rubidium	mg/L	0.0002	-	0.00033	0.00024	0.00094	0.00046	0.00031	0.00032	0.00029	0.00034	0.00038	0.00074
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.393	0.381	0.743	0.73	0.4	0.41	0.54	0.54	0.6	0.61
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	0.77	0.75	8.94	9.62	0.83	0.81	1.1	1.16	4.81	4.51
Strontium	mg/L	0.0002	0.25	0.0056	0.0056	0.025	0.0262	0.0044	0.0045	0.0083	0.0085	0.0192	0.0205
Sulphur	mg/L	0.5	-	<0.50	<0.50	4.8	5.24	<0.50	<0.50	0.73	0.53	2.83	2.57
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	0.00087	0.00052	0.00055	<0.00030	0.00075	0.00088	0.00074	0.00071	<0.00030	0.00061
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000116	0.000109	0.0012	0.00131	0.000068	0.000071	0.000217	0.000219	0.000954	0.000937
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date									
				2016				2017		2018			
				29-Jun-16	29-Jun-16	25-Aug-16	25-Aug-16	29-Jun-17	29-Jun-17	04-Jul-18	04-Jul-18	31-Aug-18	31-Aug-18
				DS	US	DS	US	US	DS	US	DS	US	DS
Dissolved Metals and Non-Metals													
Aluminum	mg/L	0.0010	-	-	-	-	-	-	-	-	-	-	-
Arsenic	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-
Barium	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/L	0.010	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/L	0.0000050	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	0.050	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/L	0.0002	-	-	-	-	-	-	-	-	-	-	-
Iron	mg/L	0.01	-	-	-	-	-	-	-	-	-	-	-
Lead	mg/L	0.00005	Variable ^e	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.005	-	-	-	-	-	-	-	-	-	-	-
Manganese	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/L	0.000005	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	mg/L	0.00005	-	-	-	-	-	-	-	-	-	-	-
Nickel	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-	-
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.000050	-	-	-	-	-	-	-	-	-	-	-
Silver	mg/L	0.00001	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-
Strontium	mg/L	0.0002	0.25	-	-	-	-	-	-	-	-	-	-
Thallium	mg/L	0.000010	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	0.00010	-	-	-	-	-	-	-	-	-	-	-
Uranium	mg/L	0.000010	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/L	0.00050	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/L	0.0010	Variable ^e	-	-	-	-	-	-	-	-	-	-
Miscellaneous (Water)													
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date										
				2019				2020						
				22-Jun-19 US	22-Jun-19 DS	09-Aug-19 US	09-Aug-19 DS	22-Jun-20 US	22-Jun-20 DS	21-Jul-20 US	21-Jul-20 DS	14-Aug-20 US	14-Aug-20 DS	14-Aug-20 DS Field Blank
In Situ Parameters														
Temperature	°C	-	-	1.9	2.0	6.8	7.2	0.9	1.0	8.9	10.2	3.1	3.4	3.4
Specific Conductance	µS/cm	-	-	0.1486	0.1513	0.4873	0.4753	0.093	0.0863	0.3193	0.3294	0.399	0.665	0.665
Dissolved Oxygen	mg/L	-	<9.5	-	-	-	-	14.1	14.0	11.73	11.3	99.5	98.1	98.1
Dissolved Oxygen	%	-	-	98.5	97.6	101.9	100.3	98.7	98.1	100.6	91.2	13.36	13.08	13.08
pH	pH units	-	6.5 - 9.0	8.11	7.94	8.31	8.18	7.75	7.74	8.34	8.33	8.24	8.04	8.04
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters														
pH	pH units	0.1	6.5 - 9.0	8.13	8.15	8.25	8.29	7.62	7.74	8.31	8.26	8.30	8.26	6.47
Conductivity	µS/cm	1	-	-	-	-	-	86.5	91	322	347	694	674	<2.0
Turbidity	NTU	0.1	-	0.40	0.60	0.25	0.58	0.43	0.50	0.23	0.50	0.1	2.79	<0.10
Hardness	mg/L as CaCO₃	-	-	91.2	92.3	193	185	39.5	42	132	134	227	233	<0.50
Total Suspended Solids	mg/L	1.0 - 1.1	Variable ^g	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids	mg/L	19 - 20	-	102	106	269	267	66	64	175	186	378	392	10
Dissolved Anions														
Alkalinity	mg/L as CaCO₃	2.0	-	90	91	148	151	37	40	111	116	158	163	<1.0
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	2.35	2.51	50.1	45.7	13.8	3.12	25.8	26.50	97.9	90.5	<0.50
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients														
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	0.014	<0.010	<0.010	<0.010	<0.0050	<0.0050	<0.0010
Nitrate	mg/L N	0.02	3.0	0.025	0.026	0.047	0.038	1.55	0.37	0.054	0.04	0.369	0.321	<0.0050
Nitrate + Nitrite	mg/L N	-	-	0.025	0.026	0.047	0.038	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	0.017	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0170	<0.0050	<0.0050	<0.0050
Total Phosphorus	mg/L	0.002	0.01	0.0064	0.0031	<0.0030	<0.0030	0.0095	0.0070	<0.0030	0.0033	0.0022	0.0041	<0.0020
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds														
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	2.18	2.25	2.09	2.07	3.14	3.00	3.11	3.01	2.37	3.02	<0.50
Total Organic Carbon	mg/L	0.5	-	3.34	2.99	2.5	2.47	3.6	3.78	3.29	3.49	2.26	2.87	0.56
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date										
				2019				2020						
				22-Jun-19	22-Jun-19	09-Aug-19	09-Aug-19	22-Jun-20	22-Jun-20	21-Jul-20	21-Jul-20	14-Aug-20	14-Aug-20	14-Aug-20
				US	DS	US	DS	US	DS	US	DS	US	DS	DS Field Blank
Total Metals and Non-Metals														
Aluminum	mg/L	0.003	Variable ^f	0.0248	0.0271	0.010	0.0244	0.03370	0.0382	0.0096	0.0247	0.0039	0.0819	<0.0030
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	0.00012	0.00013	<0.00010	<0.00010	<0.00010	0.0001	0.00012	0.00012	<0.00010
Barium	mg/L	0.0001	-	0.00327	0.00353	0.00972	0.0101	0.00194	0.00193	0.00611	0.00687	0.0137	0.0141	<0.00010
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	0.014	0.013	<0.010	<0.010	0.018	0.017	0.043	0.037	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	19.0	19.1	40.8	41.3	8.56	8.99	27.3	28.2	45.9	45.6	<0.050
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000022	<0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00010	0.00022	<0.00010
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	<0.0010	<0.0010	<0.0010	0.0012	0.00059	<0.00050	0.00088	0.00083	0.00097	0.00099	<0.00050
Iron	mg/L	0.01	0.300	0.018	0.024	<0.010	0.035	0.034	0.039	<0.010	0.026	<0.010	0.099	<0.010
Lead	mg/L	0.00005	0.001 - 0.007 ^c	<0.000050	<0.000050	<0.000050	<0.000050	0.000065	<0.000050	<0.000050	<0.000050	<0.000050	0.000128	<0.000050
Lithium	mg/L	0.001	-	0.0021	0.002	0.0046	0.0046	<0.0010	<0.0010	0.0043	0.0043	0.008	0.0072	<0.0010
Magnesium	mg/L	0.005	-	10.2	10.5	20.9	20.3	4.76	4.82	14.6	15.4	25.2	25	<0.0050
Manganese	mg/L	0.0001	Variable ^c	<0.00050	0.00108	0.00065	0.0038	0.00122	0.0016	<0.00050	0.00287	0.00047	0.00639	<0.00010
Mercury	mg/L	0.000005	0.000026	<0.000010	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	0.073	0.000066	0.000077	0.000159	0.000155	<0.000050	<0.000050	0.000114	0.000134	0.000168	0.000174	<0.000050
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.408	0.458	0.978	1.0	0.39	0.388	0.997	1.02	2.16	2.06	<0.050
Rubidium	mg/L	0.0002	-	0.00036	0.00055	0.0007	0.00111	0.00038	0.00041	0.00044	0.00078	0.00069	0.00127	<0.00020
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.59	0.58	0.74	0.76	0.42	0.42	0.68	0.69	1.17	1.25	<0.10
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010
Sodium	mg/L	0.05	-	2.04	1.96	19.5	17.3	2.33	2.34	18.1	17.8	49.9	45.4	<0.050
Strontium	mg/L	0.0002	0.25	0.0112	0.0119	0.0345	0.0329	0.0062	0.006	0.0274	0.0262	0.0701	0.063	<0.00020
Sulphur	mg/L	0.5	-	0.97	1.02	11.9	10.7	0.68	0.63	5.32	5.28	17.9	16.4	<0.50
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	0.00100	0.00114	0.00036	0.00127	0.0012	0.00162	0.00041	0.00103	<0.00030	0.00479	<0.00030
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000398	0.000437	0.00153	0.00148	0.000099	0.000115	0.000893	0.000936	0.0023	0.0022	<0.000010
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00023	<0.00020

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date											
				2019				2020							
				22-Jun-19 US	22-Jun-19 DS	09-Aug-19 US	09-Aug-19 DS	22-Jun-20 US	22-Jun-20 DS	21-Jul-20 US	21-Jul-20 DS	14-Aug-20 US	14-Aug-20 DS	14-Aug-20 DS Field Blank	
Dissolved Metals and Non-Metals															
Aluminum	mg/L	0.0010	-	-	-	-	-	0.009	0.012	<0.0050	0.006	0.0012	0.0048	<0.0010	
Arsenic	mg/L	0.00010	-	-	-	-	-	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	
Barium	mg/L	0.00010	-	-	-	-	-	0.00171	0.00	0.00629	0.01	0.0147	0.0146	<0.00010	
Boron	mg/L	0.010	-	-	-	-	-	<0.010	<0.010	0.019	0.02	0.043	0.038	<0.010	
Cadmium	mg/L	0.0000050	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Calcium	mg/L	0.050	-	-	-	-	-	8.18	8.5700	27.9	28.0000	48.5	50.2	<0.050	
Chromium	mg/L	0.0005	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00010	0.00014	<0.00010	
Cobalt	mg/L	0.0001	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Copper	mg/L	0.0002	-	-	-	-	-	0.00038	0.000	0.00079	0.001	0.001	0.00094	<0.00020	
Iron	mg/L	0.01	-	-	-	-	-	0.011	0.01	<0.010	<0.010	<0.010	0.013	<0.010	
Lead	mg/L	0.00005	Variable ^e	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Magnesium	mg/L	0.005	-	-	-	-	-	4.62	5	15	15	25.8	26.3	<0.0050	
Manganese	mg/L	0.0001	-	-	-	-	-	<0.00050	0.00	<0.00050	0.00	0.00041	0.00458	<0.00010	
Mercury	mg/L	0.000005	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum	mg/L	0.00005	-	-	-	-	-	<0.000050	<0.000050	0.000129	0.000	0.000145	0.000173	<0.000050	
Nickel	mg/L	0.0005	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	mg/L	0.05	-	-	-	-	-	0.364	0.38	1.02	1.07	2.5	2.33	<0.050	
Selenium	mg/L	0.000050	-	-	-	-	-	<0.000050	<0.000050	0.000054	<0.000050	<0.000050	<0.000050	<0.000050	
Silver	mg/L	0.00001	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	
Sodium	mg/L	0.05	-	-	-	-	-	2.44	2.52	17.7	17.90	53.3	51.1	<0.050	
Strontium	mg/L	0.0002	0.25	-	-	-	-	0.0059	0.006	0.0277	0.028	0.0672	0.063	<0.00020	
Thallium	mg/L	0.000010	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Tin	mg/L	0.00010	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium	mg/L	0.000010	-	-	-	-	-	0.000081	0.000086	0.000898	0.000933	0.00214	0.00215	<0.000010	
Vanadium	mg/L	0.00050	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Zinc	mg/L	0.0010	Variable ^e	-	-	-	-	<0.0010	0.00	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Miscellaneous (Water)															
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-	-	

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date								
				2021				2022				
				13-Jun-21	13-Jun-21	17-Aug-21	17-Aug-21	19-Jun-22	19-Jun-22	28-Aug-22	28-Aug-22	28-Aug-22
				DS	US	DS	US	DS	US	DS	US	DS Travel Blank
In Situ Parameters												
Temperature	°C	-	-	1.3	0.9	3.9	3.6	3.4	1.7	6.9	5.4	-
Specific Conductance	µS/cm	-	-	49.1	46.5	313.4	310	8.1	82.8	487.5	493.5	-
Dissolved Oxygen	mg/L	-	<9.5	13.13	13.78	13.06	13.22	13.45	13.52	13.02	13.8	-
Dissolved Oxygen	%	-	-	94.1	98.0	101.6	101.9	99.4	97.0	109.5	111.8	-
pH	pH units	-	6.5 - 9.0	7.83	7.84	8.47	8.51	7.72	7.65	8.29	8.31	-
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters												
pH	pH units	0.1	6.5 - 9.0	7.68	7.61	8.29	8.30	7.65	7.63	8.40	8.35	5.50
Conductivity	µS/cm	1	-	51.8	49.1	339	335	89.1	87.9	487	490	<1.0
Turbidity	NTU	0.1	-	3.40	2.38	0.62	0.41	6.04	2.74	<1.0	<1.0	<1.0
Hardness	mg/L as CaCO₃	-	-	22.8	21.3	131	129	38.8	38.1	200	197	<0.50
Total Suspended Solids	mg/L	1.0 - 1.1	Variable ⁶	7.6	5.1	1.3	1.1	10.0	4.3	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	19 - 20	-	32	29	176	172	40	38	260	239	13
Dissolved Anions												
Alkalinity	mg/L as CaCO₃	2.0	-	26.5	23.0	122	120	37.9	37.2	162.0	159	<1.0
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	2.08	1.88	21.0	20.9	3.60	3.51	41.70	43.7	<0.50
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-
Nutrients												
NH₃+NH₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate	mg/L N	0.02	3.0	0.021	0.022	<0.020	<0.020	0.033	0.032	0.116	0.138	<0.020
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.010	<0.010	<0.010	<0.010	0.012	0.013	0.011	<0.010	<0.010
Total Phosphorus	mg/L	0.002	0.01	0.0037	0.0071	<0.0030	<0.0030	0.0054	0.0046	<0.0030	<0.0030	<0.0030
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050
Organic Compounds												
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	3.58	3.00	3.48	3.98	3.00	2.65	1.80	1.71	<0.50
Total Organic Carbon	mg/L	0.5	-	3.18	2.90	5.69	5.95	2.86	2.54	3.21	2.70	0.57
Total Kjeldahl Nitrogen	mg/L	-	-	0.280	0.230	0.140	0.140	0.172	0.191	0.093	0.094	<0.050
Chlorophyll-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m₃	-	-	-	-	-	-	-	-	-	-	-

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date								
				2021				2022				
				13-Jun-21	13-Jun-21	17-Aug-21	17-Aug-21	19-Jun-22	19-Jun-22	28-Aug-22	28-Aug-22	28-Aug-22
				DS	US	DS	US	DS	US	DS	US	DS Travel Blank
Total Metals and Non-Metals												
Aluminum	mg/L	0.003	Variable ^f	0.0795	0.0439	0.0376	0.0214	0.167	0.0929	0.0150	<0.0050	<0.0050
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	0.00012	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium	mg/L	0.0001	-	0.00162	0.00127	0.00703	0.00621	0.00299	0.00223	0.01070	0.0096	<0.00010
Beryllium	mg/L	0.00002	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	0.016	0.016	<0.010	<0.010	0.028	0.031	<0.010
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	0.05	-	4.95	4.54	27.2	26.9	8.03	7.85	40.2	38.1	<0.050
Cesium	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	0.000032	0.000014	<0.000010	<0.000010	<0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	0.00075	<0.00050	0.00107	0.00104	<0.00050	<0.00050	0.00080	0.00076	<0.00050
Iron	mg/L	0.01	0.300	0.079	0.046	0.031	0.018	0.161	0.099	0.032	<0.010	<0.010
Lead	mg/L	0.00005	0.001 - 0.007 ^c	0.000096	<0.000050	<0.000050	<0.000050	0.000168	0.000098	<0.000050	<0.000050	<0.000050
Lithium	mg/L	0.001	-	<0.0010	<0.0010	0.0043	0.0045	0.0013	0.0010	0.0051	0.0053	<0.0010
Magnesium	mg/L	0.005	-	2.82	2.62	15.2	14.9	4.99	4.79	24.20	23.5	<0.0050
Manganese	mg/L	0.0001	Variable ^c	0.00218	0.00128	0.00157	<0.00050	0.00992	0.00697	0.00628	0.00062	<0.00050
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	0.0000070	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00005	0.073	<0.000050	<0.000050	0.000137	0.000135	0.000071	0.000053	0.000165	0.000145	<0.000050
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	0.05	-	0.444	0.392	1.11	1.08	0.580	0.490	1.580	1.63	<0.050
Rubidium	mg/L	0.0002	-	0.00057	0.00044	0.00061	0.00047	0.00097	0.00061	0.00079	0.0005	<0.00020
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	0.1	-	0.36	0.28	0.96	0.92	0.53	0.42	0.93	1	3.28
Silver	mg/L	0.00001	0.25	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium	mg/L	0.05	-	1.37	1.18	16.0	16.0	2.07	2.06	28.70	30.3	<0.050
Strontium	mg/L	0.0002	0.25	0.0040	0.0034	0.0283	0.0282	0.0075	0.0059	0.0478	0.0481	<0.0010
Sulphur	mg/L	0.5	-	<0.50	<0.50	5.67	5.53	<0.50	<0.50	8.25	8.65	<0.50
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium	mg/L	0.0003	-	0.00303	0.00155	0.00149	<0.00080	0.00603	0.00337	0.00050	<0.00030	<0.00030
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	0.00001	0.015	0.000087	0.000050	0.000997	0.000970	0.000192	0.000095	0.00192	0.00195	<0.000010
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	0.00028	<0.00020	<0.00020

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date									
				2021				2022					
				13-Jun-21	13-Jun-21	17-Aug-21	17-Aug-21	19-Jun-22	19-Jun-22	28-Aug-22	28-Aug-22	28-Aug-22	
				DS	US	DS	US	DS	US	DS	US	DS Travel Blank	
Dissolved Metals and Non-Metals													
Aluminum	mg/L	0.0010	-	0.0149	0.0128	0.0053	<0.0050	0.0134	0.0067	<0.0050	<0.0050	<0.0050	
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Barium	mg/L	0.00010	-	0.00121	0.00106	0.00703	0.00652	0.00217	0.00196	0.0107	0.0104	<0.00010	
Boron	mg/L	0.010	-	<0.010	<0.010	0.015	0.015	<0.010	<0.010	0.027	0.030	<0.010	
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Calcium	mg/L	0.050	-	4.71	4.38	27.4	26.9	8.18	7.91	40.20000	38.7	<0.050	
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Copper	mg/L	0.0002	-	0.00023	<0.00020	0.00101	0.00097	0.00027	0.00027	0.00	0.0007	<0.00020	
Iron	mg/L	0.01	-	0.016	0.014	<0.010	<0.010	0.017	<0.010	<0.010	<0.010	<0.010	
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Magnesium	mg/L	0.005	-	2.69	2.51	15.2	15.0	4.46	4.46	24.3	24.3	<0.0050	
Manganese	mg/L	0.0001	-	0.00132	0.00077	0.00112	<0.00050	0.00630	0.00438	0.00611	0.00061	<0.00050	
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	0.0000061	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum	mg/L	0.00005	-	<0.000050	<0.000050	0.000136	0.000114	0.000067	<0.000050	0.000154	0.00014	<0.000050	
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	
Potassium	mg/L	0.05	-	0.390	0.361	1.10	1.09	0.519	0.447	1.61	1.72	<0.050	
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Silver	mg/L	0.00001	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Sodium	mg/L	0.05	-	1.34	1.15	15.9	15.8	2.02	2.07	28.6	31.6	0.137	
Strontium	mg/L	0.0002	0.25	0.0037	0.0032	0.0289	0.0285	0.0076	0.0058	0.04720	0.0511	<0.0010	
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium	mg/L	0.000010	-	0.000074	0.000048	0.000967	0.000922	0.000151	0.000073	0.00185	0.00193	<0.000010	
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Zinc	mg/L	0.0010	Variable ^e	<0.0010	<0.0010	<0.0010	<0.0010	0.0015	0.0012	0.0021	<0.0010	<0.0010	
Miscellaneous (Water)													
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	<0.0020	<0.0020	<0.0023	

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				26-Jun-23	26-Jun-23	16-Jul-23	16-Jul-23	20-Aug-23	20-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
In Situ Parameters													
Temperature	°C	-	-	0.3	0.1	5.7	5	4.0	3.7	4.0	2.7	6.3	6
Specific Conductance	µS/cm	-	-	66.4	62.8	128.1	122	247.7	241.7	49.1	48.2	292.7	283.1
Dissolved Oxygen	mg/L	-	<9.5	13.18	13.4	12.10	12.15	12.17	12.4	12.82	13.04	11.87	11.6
Dissolved Oxygen	%	-	-	94.9	95.9	98.5	97.2	95.9	97.1	98.2	96.4	96.2	93.5
pH	pH units	-	6.5 - 9.0	7.57	7.62	7.96	7.95	8.27	8.33	7.40	7.48	8.22	8.3
Wetted Width	m	-	-	-	-	-	-	-	-	-	-	-	-
Average Depth	m	-	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	m³/s	-	-	-	-	-	-	-	-	-	-	-	-
Physical Parameters													
pH	pH units	0.1	6.5 - 9.0	7.75	7.55	8.01	7.95	8.28	8.33	7.29	7.31	8.27	8.32
Conductivity	µS/cm	1	-	101	65.2	136	131	260	254	54.2	50.9	312	301
Turbidity	NTU	0.1	-	2.56	0.78	0.93	1.14	0.56	0.5	2.11	1.36	0.94	0.16
Hardness	mg/L as CaCO ₃	-	-	38.3	32.8	62.9	60.8	126.1	120.6	27.5	26.2	148	143
Total Suspended Solids	mg/L	1.0 - 1.1	Variable ^R	3.8	4.1	<1.0	1.2	<1.0	<1.0	23.2	8.0	< 1.1	< 1.0
Total Dissolved Solids	mg/L	19 - 20	-	48	32	68	67	143	132	40	40	176	163
Dissolved Anions													
Alkalinity	mg/L as CaCO ₃	2.0	-	74.3	55.9	71.9	62.8	116	114	26.3	26.3	137	134
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	0.5	120	3.47	0.88	2.95	2.7	8.81	8.37	0.71	0.52	11.9	10.8
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients													
NH ₃ +NH ₄	mg/L N	-	0.021 - 231 ^a	-	-	-	-	-	-	-	-	-	-
Nitrite	mg/L N	0.01	0.060	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
Nitrate	mg/L N	0.02	3.0	0.026	0.023	0.022	0.023	0.042	0.043	< 0.020	< 0.020	< 0.020	0.023
Nitrate + Nitrite	mg/L N	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, total as N	mg/L	0.005	Variable ^a	<0.0050	<0.0050	<0.0050	<0.0050	0.0074	0.008	< 0.0050	< 0.0050	< 0.0050	0.0103
Total Phosphorus	mg/L	0.002	0.01	0.0049	0.0057	0.0036	0.006	0.002	0.0025	0.0158	0.0074	0.0033	< 0.0020
Dissolved Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Organic Compounds													
Phenols	mg/L	-	0.004	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.5	-	1.98	1.84	1.32	1.27	2.28	2.63	2.61	3.59	2.78	2.44
Total Organic Carbon	mg/L	0.5	-	2.14	1.98	1.09	1.26	2.41	2.57	2.60	2.60	2.32	2.28
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll-a	mg/m ₃	-	-	-	-	-	-	-	-	-	-	-	-
Pheophytin-a	mg/m ₃	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				26-Jun-23	26-Jun-23	16-Jul-23	16-Jul-23	20-Aug-23	20-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
Total Metals and Non-Metals													
Aluminum	mg/L	0.003	Variable ^f	0.108	0.0278	0.021	0.0189	0.021	0.014	0.111	0.137	0.0121	0.0039
Antimony	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Arsenic	mg/L	0.0001	0.005	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	< 0.00010	< 0.00010	0.00011	0.00012
Barium	mg/L	0.0001	-	0.00547	0.00126	0.0027	0.00251	0.00576	0.00497	0.00211	0.00192	0.00797	0.00604
Beryllium	mg/L	0.00002	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	< 0.000020	< 0.000020	< 0.000020	< 0.000020
Bismuth	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Boron	mg/L	0.01	1.5	<0.010	<0.010	<0.010	<0.010	0.012	0.012	< 0.010	< 0.010	0.017	0.017
Cadmium	mg/L	0.000005	Variable ^c	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Calcium	mg/L	0.05	-	9.9	6.83	13	12.6	25.9	23.7	6.36	6.30	29.8	28.3
Cesium	mg/L	0.00001	-	0.000018	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000022	0.000023	< 0.000010	< 0.000010
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	0.00145	< 0.00050
Cobalt	mg/L	0.0001	Variable ^c	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Copper	mg/L	0.0005	0.002 - 0.004 ^c	0.0022	<0.00050	0.0005	<0.00050	0.00082	0.00108	0.00052	< 0.00050	0.00092	0.00074
Iron	mg/L	0.01	0.300	0.11	0.029	0.021	0.02	0.019	0.014	0.136	0.178	0.032	< 0.010
Lead	mg/L	0.00005	0.001 - 0.007 ^c	0.00014	<0.000050	<0.000050	0.000054	<0.000050	<0.000050	0.000143	0.000154	< 0.000050	< 0.000050
Lithium	mg/L	0.001	-	0.0011	<0.0010	0.0015	0.0014	0.0033	0.0033	< 0.0010	< 0.0010	0.0035	0.0037
Magnesium	mg/L	0.005	-	6	4.14	7.38	7.31	14.4	13.9	3.74	3.48	17.2	16.6
Manganese	mg/L	0.0001	Variable ^c	0.00472	0.00123	0.00107	0.00093	0.00148	0.00043	0.00447	0.00440	0.00356	0.00022
Mercury	mg/L	0.000005	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Molybdenum	mg/L	0.00005	0.073	0.000136	<0.000050	0.000055	0.000054	0.000128	0.000141	< 0.000050	< 0.000050	0.000158	0.000123
Nickel	mg/L	0.0005	0.025 - 0.150 ^c	0.0008	<0.00050	<0.00050	<0.00050	<0.00050	0.00056	< 0.00050	< 0.00050	0.00079	< 0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	mg/L	0.05	-	0.794	0.293	0.402	0.369	0.756	0.711	0.425	0.410	1.09	1.00
Rubidium	mg/L	0.0002	-	0.00153	0.00027	0.0004	0.00033	0.0005	0.00041	0.00077	0.00082	0.00069	0.00039
Selenium	mg/L	0.00005	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Silicon	mg/L	0.1	-	0.6	0.26	0.56	0.54	1.11	1.12	0.52	0.56	0.91	0.89
Silver	mg/L	0.00001	0.25	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Sodium	mg/L	0.05	-	1.81	0.514	2.71	2.49	8.12	7.82	0.468	0.371	9.35	9.08
Strontium	mg/L	0.0002	0.25	0.00908	0.00349	0.00944	0.0088	0.0222	0.0211	0.00416	0.00361	0.0314	0.0296
Sulphur	mg/L	0.5	-	0.61	<0.50	0.69	0.64	2.52	2.63	< 0.50	< 0.50	3.34	3.43
Tellurium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Thallium	mg/L	0.00001	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Thorium	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Tin	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Titanium	mg/L	0.0003	-	0.00463	<0.00090	<0.00080	0.00089	0.00081	0.00046	0.00581	0.00673	0.00045	< 0.00030
Tungsten	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Uranium	mg/L	0.00001	0.015	0.000404	0.000047	0.000251	0.000228	0.000879	0.00083	0.000072	0.000049	0.00127	0.00122
Vanadium	mg/L	0.0005	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Zinc	mg/L	0.003	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030
Zirconium	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020

Table 2.8 Water Quality Monitoring Of Baseline Fisheries Culverts Surface
Water Quality Summary For Sample Site N1-110 (BG24)

Parameter	Units	2024 LOR	CCME Guideline	Date									
				2023						2024			
				26-Jun-23	26-Jun-23	16-Jul-23	16-Jul-23	20-Aug-23	20-Aug-23	23-Jun-24	23-Jun-24	18-Aug-24	18-Aug-24
				DS	US	DS	US	DS	US	DS	US	DS	US
Dissolved Metals and Non-Metals													
Aluminum	mg/L	0.0010	-	0.0086	0.0059	0.0028	0.0028	0.0034	0.0028	0.0085	0.0203	0.0038	0.0023
Arsenic	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Barium	mg/L	0.00010	-	0.0022	0.00114	0.00263	0.00241	0.00551	0.00509	0.00137	0.00139	0.00736	0.00570
Boron	mg/L	0.010	-	<0.010	<0.010	<0.010	<0.010	0.01	0.01	< 0.010	< 0.010	0.016	0.016
Cadmium	mg/L	0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Calcium	mg/L	0.050	-	7.68	6.62	13	12.6	26.2	24.5	5.52	5.45	30.1	28.7
Chromium	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Cobalt	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Copper	mg/L	0.0002	-	0.00028	<0.00020	0.00039	0.0004	0.00083	0.00083	0.00027	0.00024	0.00104	0.00077
Iron	mg/L	0.01	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.022	0.030	< 0.010	< 0.010
Lead	mg/L	0.00005	Variable ^e	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Magnesium	mg/L	0.005	-	4.61	3.91	7.32	7.07	14.6	14.3	3.33	3.07	17.7	17.4
Manganese	mg/L	0.0001	-	0.00192	0.00057	0.00071	0.00013	0.00128	0.00013	0.00075	0.00063	0.00317	0.00019
Mercury	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	< 0.0000050	< 0.0000050	< 0.0000050	< 0.0000050
Molybdenum	mg/L	0.00005	-	0.000055	<0.000050	0.000059	0.000056	0.000122	0.000105	< 0.000050	< 0.000050	0.000142	0.000126
Nickel	mg/L	0.0005	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Phosphorus	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	mg/L	0.05	-	0.482	0.285	0.439	0.414	0.75	0.73	0.348	0.334	1.02	0.943
Selenium	mg/L	0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	< 0.000050	< 0.000050	< 0.000050	< 0.000050
Silver	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Sodium	mg/L	0.05	-	0.944	0.483	2.63	2.48	8.25	7.93	0.419	0.374	9.30	9.12
Strontium	mg/L	0.0002	0.25	0.00556	0.0035	0.01	0.00936	0.0234	0.0222	0.00368	0.00325	0.0322	0.0288
Thallium	mg/L	0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Tin	mg/L	0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Uranium	mg/L	0.000010	-	0.00015	0.000038	0.000233	0.000205	0.000804	0.000763	0.000049	0.000033	0.00121	0.00121
Vanadium	mg/L	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
Zinc	mg/L	0.0010	Variable ^e	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	< 0.0010	< 0.0010	0.0012	< 0.0010
Miscellaneous (Water)													
6PPD-Quinone	ug/L	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3. FISH-BEARING STREAM CROSSING SITES SURVEYED IN SPRING 2024

Location ID	Authorization Type	UTM ¹		Culvert ID	Fish Captured/Observed		2024 Survey ²				
		Easting	Northing		DS	US	Date	DS Culvert Velocity (m/s)	US Culvert Velocity (m/s)	Perch (m)	Water Temperature (°C)
CV-129	HADD	512,381	7,966,783	-	Y	Y	12-Jul	0.45	1.06	0.00	9.0
CV-128a	-	513,680	7,966,148	Left	Y	Y	12-Jul	0.00	0.48	0.00	8.0
				Right			12-Jul	0.00	0.09	0.00	8.0
CV-128 ³	HADD	513,556	7,965,889	-	Y	Y	12-Jul	-	-	-	5.0
CV-115 ⁴	LOA	519,222	7,958,135	-	N	N	12-Jul	-	-	0.00	-
CV-114	HADD	520,278	7,956,528	Left	Y	N	12-Jul	0.42	1.03	0.14	6.0
				Right			12-Jul	0.41	0.55	0.13	6.0
CV-112	LOA	521,033	7,954,935	Left	Y	Y	12-Jul	0.18	0.22	0.00	10.5
				Centre			12-Jul	0.47	0.09	0.06	10.5
				Right			12-Jul	0.01	0.14	0.00	10.5
CV-111	HADD	521,355	7,954,524	-	Y	Y	12-Jul	0.84	0.31	0.33	13.0
CV-106	LOA	521,663	7,953,392	-	Y	N	12-Jul	No surface water in culvert		0.00	4.0
CV-104	HADD	521,732	7,952,788	Left	Y	N	12-Jul	0.83	0.28	0.12	5.0
				Right			12-Jul	1.46	0.43	0.00	5.0
CV-102	LOA	521,934	7,950,591	-	Y	Y	12-Jul	NM	NM	0.00	10.0
CV-099	HADD	521,886	7,948,843	Left	Y	Y	13-Jul	Dry	Dry	Dry	5.0
				Right			13-Jul	1.19	1.36	0.00	5.0
CV-085		523,877	7,940,904		N	Y	13-Jul	0.36	1.42	0.00	5.0
CV-079	HADD	525,538	7,937,314	Left Channel Culvert	Y	Y	13-Jul	0.27	0.17	0.00	5.0
		525,583	7,937,231	Centre Channel Culvert			13-Jul	0.20	NM	0.14	5.0
		525,644	7,937,131	Right Channel Culvert A			13-Jul	0.76	0.66	0.08	5.0

Location ID	Authorization Type	UTM ¹		Culvert ID	Fish Captured/Observed		2024 Survey ²				
		Easting	Northing		DS	US	Date	DS Culvert Velocity (m/s)	US Culvert Velocity (m/s)	Perch (m)	Water Temperature (°C)
CV-079 (CONT)	HADD	525,644	7,937,131	Right Channel Culvert B			13-Jul	1.72	0.94	0.00	5.0
		525,653	7,937,117	Right Channel Culvert C			13-Jul	-	-	0.25	5.0
		525,663	7,937,102	Right Channel Culvert D			13-Jul	-	-	0.05	5.0
CV-078	HADD	525,852	7,936,787	Culvert A	Y	N	13-Jul	Dry	Dry	0.10	8.5
		525,852	7,936,787	Culvert B			13-Jul	NM	NM	0.00	8.5
		525,852	7,936,787	Culvert C			13-Jul	NM	NM	0.00	8.5
		525,853	7,936,775	Culvert D			13-Jul	NM	NM	0.00	8.5
CV-076	LOA	526,586	7,935,498		Y	Y	13-Jul	0.23	0.74	0.00	9.0
CV-072	HADD	526,897	7,934,576		Y	Y	13-Jul	0.29	0.17	0.00	5.5
CV-061		527,263	7,931,366		Y	Y	13-Jul	0.38	0.50	0.19	9.0
CV-061b		527,491	7,930,654	Left	Y	N	13-Jul	0.17	0.33	0.19	9.5
				Right			13-Jul	0.24	0.24	0.14	9.5
CV-060	HADD	527,622	7,930,342	Left	Y	Y	13-Jul	0.24	0.10	0.00	8.5
				Right			13-Jul	0.00	0.13	0.00	8.5
CV-059	LOA	528,094	7,929,347	Left	Y	Y	14-Jul	0.02	0.24	0.00	4.0
				Right			14-Jul	Dry	Dry	Dry	4.0
CV-058	LOA	528,322	7,928,839		N	Y	13-Jul	0.01	0.00	0.00	8.5
CV-057	LOA	528,379	7,928,657	Left	Y	Y	14-Jul	0.00	0.02	0.00	5.0
				Right			14-Jul	Dry	Dry	Dry	5.0
BG-50 ^{3,6}	HADD	529,294	7,926,852	Left	Y	Y	14-Jul	0.89	NM	>0.25	5.0
				Right			14-Jul	0.27	NM	>0.25	