August 14, 2025

Attn: Director, Environmental Approvals Branch

Manitoba Environment and Climate
Box 35, 14 Fultz Boulevard
Winnipeg, Manitoba R3Y 0L6
EABDirector@gov.mb.ca

Project Name: Red-Seine-Rat Wastewater Cooperative Wastewater Treatment Facility & Conveyance System

Subject: Notice of Alteration Submission – Assessment of Environmental Effects and Social Impacts (Public Registry No. 6171.00)

Director,

Please find attached one (1) electronic copy of the Red-Seine-Rat's Wastewater Cooperative (RSRWC) Wastewater Treatment Facility & Conveyance System Notice of Alteration (NoA) for review and comment. This is intended to supplement the information submitted as part of the Notice of Alteration submitted on February 19, 2025 (Public Registry 6171.00).

Included within the submission package are:

- Notice of Alteration Form
- Updates to Section 5 and Section 6 of the Notice of Alteration Detailed Report, containing the following information
  - Section 5: Assessment of Effects and Social Impacts
  - Section 6: References
  - Appendix A – Site Photographs – Vegetation
  - Appendix B - Plant Species and Ecological Communities of Concern Discovery Contingency Plan
  - Appendix C – Site Photographs - Fisheries

The fee has not been included as an environment act proposal is in process and the licence has not yet been issued.

On behalf of RSRWC,

[redacted]

Derek Decru, CPA CGA
RM of Hanover, CFO

1-204-326-4488
Derek.decru@hanovermb.ca

Notice of Alteration Form

Manitoba

File No. : 6171.00	Environment Act Licence No. : N/A

Legal name of the Licensee: Red-Seine-Rat Wastewater Cooperative

Name of the development: Wastewater Treatment Facility & Conveyance System

Category and Type of development per Classes of Development Regulation:

Waste Treatment and Storage — Wastewater treatment plants

Licensee Contact Person: Eric King

Mailing address of the Licensee: 329 Bronstone Drive

City: Niverville Province: MB Postal Code: R0A 1E3

Phone Number: (204) 388-4600 Fax: Email: ericking@whereyoubelong.ca

Name of proponent contact person for purposes of the environmental assessment (e.g. consultant):
Kyla Kirk

Phone: (431) 489-9018 Fax:	Mailing address: Suite 700 - One Research Road Winnipeg, MB R3T 6E3 Canada

Email address: kyla.kirk@jacobs.com

Short Description of Alteration *(max 90 characters):*

Supplemental information for the Notice of Alteration dated February 2025

Alteration fee attached: Yes: ☐ No: ☑

If No, please explain:

Date: 2025-08-14

Signature: [redacted]

Printed name:

A complete Notice of Alteration **(NoA)** consists of the following components:

- ☑ **Cover letter**
- ☑ **Notice of Alteration Form**
- ☑ **1 electronic copy of the NoA detailed report** (see "Information Bulletin - Alteration to Developments with Environment Act Licences")
- ☐ **$500 Application fee, if applicable** (Cheque, payable to the Minister of Finance)

Submit the complete NoA to:
Director, Environmental Approvals Branch
Environment and Climate Change
Box 35, 14 Fultz Blvd
Winnipeg MB R3Y 0L6
EABDirector@gov.mb.ca

For more information:
Toll-Free: 1-800-282-8069
Phone: 204-945-8321 Fax: 204-945-5229
https://www.gov.mb.ca/sd/permits_licenses_approvals/eal/ licence/index.html

Note: Per Section 14(3) of the Environment Act, Major Notices of Alteration must be filed through submission of an Environment Act Proposal Form (see "Information Bulletin – Environment Act Proposal Report Guidelines")

Reset Print

Notice of Alteration Detailed Report – Supplemental Information – Assessment of Environmental Effects and Social Impacts (Public Registry No. 6171.00)

Document 250626150508_ae98e9a1
Revision No.: Final

RSRWC
Red-Seine-Rat Wastewater Treatment Facility & Conveyance System
August 13, 2025

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Purpose

The purpose of this document is to update Sections 5 and 6 of the Notice of Alteration Detailed Report (Public Registry No. 6171.00), dated February 19, 2025, that was submitted to the Director of the Environmental Approvals Branch of Manitoba Environment and Climate Change. This update focuses on the environmental effects and social impacts of the inclusion of the RM of La Broquerie and the communities of Otterburne and Providence College within the RM of De Salaberry to the Red-Seine-Rat Wastewater Cooperative (RSRWC), the relocation of the outfall, and the addition of a potable water line (PWL) from the town of Niverville to the wastewater treatment facility (WWTF).

Contents

Purpose ..... **i**

5. Assessment of Environmental Effects and Social Impacts **1**

5.1 Assessment of Effects on the Physical Environment 1

5.1.1 Description of Existing Conditions 1

5.1.2 Potential Effects on the Physical Environment 2

5.2 Assessment of Effects on Vegetation 2

5.2.1 Description of Existing Conditions 2

5.2.2 Potential Effects on Vegetation 12

5.2.3 Mitigation Measures 12

5.2.4 Residual Effects 15

5.2.5 Summary 15

5.3 Assessment of Effects on Surface Water Resources 15

5.3.1 Description of the Existing Conditions 16

5.3.2 Potential Effects on Surface Water Resources 21

5.3.3 Mitigation Measures 21

5.3.4 Residual Effects 22

5.4 Assessment of Effects on Groundwater Quality and Quantity 22

5.4.1 Description of Existing Conditions 22

5.4.2 Effects on Groundwater Quality and Quantity 23

5.4.3 Mitigation Measures 23

5.4.4 Residual Effects 24

5.4.5 Summary 24

5.5 Assessment on Effects on Wildlife and Wildlife Habitat 24

5.5.1 Description of Existing Conditions 24

5.5.2 Potential Effects on Wildlife and Wildlife Habitat 31

5.5.3 Mitigation Measures 31

5.5.4 Residual Effects 31

5.6 Conclusions 31

6. References **31**

Appendices

Appendix A Site Photographs – Vegetation

Appendix B Plant Species and Ecological Communities of Concern Discovery Contingency Plan

Appendix C Site Photographs – Fisheries

Tables

Table 5-1. Noxious Weeds Observed in the Project Area in June 2025 3
Table 5-2. Rare Plants with Recorded Occurrences within 1-km of the Amended Project Components 4
Table 5-3. Species with critical habitat within 1-km of the Amended Project Components 11
Table 5-4. Preliminary Mitigation for Known Rare Plant Species 13
Table 5-5. Wetlands and Artificial Ponds Encountered by the Project Area 16
Table 5-6. Potential Watercourse and Drainage Crossings on the Proposed Wastewater Conveyance System Route 18
Table 5-7. Wildlife Species at Risk with Recorded Occurrences within 1-km of the Amended Project Area 26
Table 5-8. Wildlife Species Observations during June 4 and 5, 2025 28

Figures

Figures 5-1a to 5-1d. Known Rare Plant Occurrences 7

5. Assessment of Environmental Effects and Social Impacts

The environmental assessment (EA) process predicts the potential effects of the Red-Seine-Rat Wastewater Treatment Facility and Conveyance System (Project) on the environmental elements within defined spatial (that is Project area, Local Study Area [LSA] and Regional Study Area [RSA]) and temporal boundaries. While the geographical area of the assessment has been expanded to include the amended project area, the spatial and temporal boundaries remain the same as the Environmental Act Proposal submission (EAP) dated July 3, 2024 (Original EAP). Aside from the change in geographical area, the assessment for the amended project area associated with the notices of alteration scope (amended project area) was completed using the same processes as presented in the Original EAP. These notices of alteration were submitted on February 21, 2025 and August 5, 2025.

5.1 Assessment of Effects on the Physical Environment

This section summarizes the changes to the existing conditions and effects assessment for the Physical Environment relevant to the amended project area associated with the notice of alteration scope (amended project area).

5.1.1 Description of Existing Conditions

The following subsections describe the climate, soils, and terrain for the amended project area.

5.1.1.1 Climate

The existing conditions for climate reported in the EAP, Section 4.3, remain unchanged.

5.1.1.2 Soils and Terrain

The existing conditions for soils, terrain, and the Physical Environment remain unchanged from the Original EAP, Section 4.4. No new characteristics relating to soils, terrain, and the Physical Environment were identified along the amended conveyance system (Matile and Keller 2007; Government of Manitoba n.d.a, n.d.e). The Original EAP, Section 4.4, provides a characterization for soils, terrain, and Physical Environment.

No contaminated sites were identified within the LSA along the amended project area during a search of the Federal Contaminated Sites Inventory or the Manitoba Contaminated Sites Registry on August 5, 2025, and no new contaminated sites have been recorded along the remaining Project routing since filing the Original EAP (Treasury Board of Canada Secretariat n.d, Government of Manitoba n.d.d).

The Clubroot Distribution Map and the Alternative Clubroot Distribution Map (Government of Manitoba n.d.b) for 2024 were reviewed for the amended project area, as was undertaken for the Original EAP. Clubroot was detected in the Rural Municipalities (RMs) of Ritchot, Taché, Hanover, and De Salaberry at 1,000 to 10,000 spores per gram of soil; and as noted in the Original EAP, clubroot positive crops did not show any symptoms (Government of Manitoba n.d.b). Less than 1,000 spores per gram of soil were detected in the RM of Ste. Anne, while the RM of La Broquerie has not been tested for clubroot (Government of Manitoba n.d.b).

5.1.2 Potential Effects on the Physical Environment

The amended project area does not result in new interactions related to the Physical Environment. No new potential effects, mitigation measures, or residual effects were identified beyond those discussed in the Original EAP, Section 4.5.

The amended project area was reviewed, and it was determined that the Original EAP's characterization of residual effects, as well as the conclusions of significance for Physical Environment, remain unchanged.

5.2 Assessment of Effects on Vegetation

Construction of the amended wastewater conveyance system will result in additional disturbance to vegetation, including riparian vegetation. Therefore, vegetation is considered in this assessment.

5.2.1 Description of Existing Conditions

As with the Original EAP, the majority of the amended project area lies in the Lake Manitoba Plain Ecoregion within the Boreal Plains Ecozone, and the remaining project area occurs in the Interlake Plain Ecoregion within the Prairie Ecozone. The amended project area within the Interlake Plain includes a large portion of the updated conveyance route to the RM of La Broquerie. Descriptions of the Manitoba Plain and Interlake Plain Ecoregions can be found in the Original EAP.

Consistent with the Original EAP, most of the lands within the Project LSA and RSA occur within agricultural land uses or have existing disturbances such as roads and water treatment infrastructure. The updated sewage conveyance system and PWL will traverse agricultural land, disturbed land, and isolated areas of native vegetation including grasslands, riparian areas, and wetlands.

Field surveys along the amended project area were conducted on June 4 and 5, 2025. Plant nomenclature follows Manitoba Conservation Data Centre (2024). The following descriptions of vegetation were incidental observations collected during the field surveys.

Crops in the amended project area mostly consisted of perennial forage (that is, alfalfa [*Medicago sativa*]) and cultivated crops (such as barley).

Outside of existing disturbances and agricultural land, undisturbed, well-vegetated areas were observed during the field survey at the proposed outfall location and in riparian areas along the new conveyance routes near Providence College and Otterburne. Vegetation observed across the amended project area included native trees (such as, trembling aspen [*Populus tremuloides*], green ash [*Fraxinus* pensylvanica], and Manitoba maple [*Acer negundo*]); shrubs (such as red-osier dogwood [*Cornus sericea],* and prairie rose *[Rosa arkansana]*); forbs (such as, star-flowered Solomon's seal [*Maianthemum stellatum*]); and grasses (such as, Kentucky bluegrass [*Poa pratensis*] and smooth brome [*Bromus inermis*]). Riparian areas adjacent to the Red River, drainages, and proposed outfall location included vegetation such as eastern cottonwood (*Populus deltoides*), green ash, sandbar willow (*Salix interior*), riverbank grape (*Vitis riparia*), water smartweed (*Persicaria amphibia*), narrow stinging nettle (*Urtica gracilis*), bulrush sp. (*Schoenoplectus* sp.) common cat-tail (*Typha latifolia*), narrow-leaved dock (*Rumex stenophyllus*), field horsetail (*Equisetum arvense*), turion duckweed (*Lemna turionifera*); grasses such as reed canary grass (*Phalaris arundinacea*), and fowl blue grass (*Poa palustris*); and sedges (*Carex* spp.). Western poison ivy (*Toxicodendron rydbergii*) was observed in one location.

Noxious weed management in Manitoba is divided into a tier system and weed designations may be applied to a geographic region, or throughout the province. Tier 2 invasive plants must be destroyed by the

landowner under the Manitoba *Noxious Weeds Act* if the colonized area is less than 20 acres; areas greater than 20 acres must be controlled. Tier 3 weeds must be controlled by the landowner where the growth or spread is likely to affect the economy, environment, or the well-being of residents in proximity. Table 5-1 lists the noxious weeds that were observed within the amended project area during the June 2025 field survey.

Table 5-1. Noxious Weeds Observed in the Project Area in June 2025

Common Name	Scientific Name	Manitoba *Noxious Weed Act* Designation[a]	Area Where the Designation Applies
Woolly burdock	*Arctium tomentosum*	Tier 3	Whole province
Dandelion	*Taraxacum officinale*	Tier 3	Whole province
Canada thistle	*Cirsium arvense*	Tier 3	Whole province

[a] Province of Manitoba n.d.h

Woolly burdock was observed on the south bank of the Rat River. Canada thistle was observed along the conveyance route from the outfall to the WWTF, from Otterburne lagoons east along the conveyance line along Otterburne Road 34N , and around the south Providence College lagoon. Dandelion was observed on the south bank of the Rat River, around the south Providence College lagoon, in the roadside ditch north of Gauthier Road approximately 300 m east of Hwy 200, and in other ditches along the new conveyance routes.

Non-native species such as the following were also observed: rough cocklebur (*Xanthium strumarium*), white clover (*Trifolium repens*), alsike clover (*Trifolium hybridum*), and curly dock (*Rumex crispus*), and bird's-foot trefoil (*Lotus corniculatus*).

In addition to the Manitoba *Noxious Weeds Act,* the RM of De Salaberry provides a list of permitted herbicides within the Red River Weed Control District 2021 Proposed Pesticide Program (RM of De Salaberry n.d.). Information about a current Pesticide Program was not available at the time of writing.

Data was acquired from the Manitoba Conservation Data Centre regarding known rare plants (Murray pers. comm. 2025). Table 5-2 lists known rare plants with recorded occurrences within a 1-kilometre (km) buffer of the amended project components.

There were no incidental observations of rare plants within the amended project area in June 2025. Milkweed was observed in two locations, but it was not whorled milkweed (*Asclepias verticillata)*, as the observed plants had large, ovate leaves (likely dwarf milkweed [*Asclepias ovalifolia]*), rather than linear leaves like whorled milkweed. Example photographs of the vegetation observed during the field survey are included in Appendix A.

Table 5-2. Rare Plants with Recorded Occurrences within 1-km of the Amended Project Components

Common Name	Scientific Name	S-Rank[a]	Provincial Status	SARA Status	COSEWIC Status	Discussed in Original EAP[b]	New Conveyance Route	Within 30 m of New Route
American Waterwort	*Elatine americana*	SH	—	—	—	No	DS	No
Bulbous Bittercress	*Cardamine bulbosa*	SH	—	—	—	Yes	DS	Yes
Canada Moonseed	*Menispermum canadense*	S3	—	—	—	No	DS	Yes
Fascicled Ironweed	*Vernonia fasciculata*	S1	Endangered	Endangered	Endangered	No	DS	Yes
Hall's Sedge	*Carex hallii*	S1S2	—	—	—	No	DS	Yes
Narrow-leaved Agalinis	*Agalinis tenuifolia*	S3	—	—	—	No	LB	Yes
Neglected Milkvetch	*Astragalus neglectus*	S1	—	—	—	Yes	DS	No
Pale Moonwort	*Botrychium pallidum*	SH	—	—	—	No	DS	No
Riddell's Goldenrod	*Solidago riddellii*	S2S3	Threatened	Special Concern	Special Concern	Yes	DS and LB	Yes
Whorled Milkweed	*Asclepias verticillata*	S3	—	—	—	No	DS	Yes
Whorled Milkwort	*Polygala verticillata* var. *isocycla*	S2	—	—	—	No	DS	Yes
Woodland Lettuce	*Lactuca floridana*	SH	—	—	—	Yes	DS	Yes
Yellow Stargrass	*Hypoxis hirsuta*	S3S4	—	—	—	No	DS	Yes

[a] Provincial (S) ranks are assigned by the Manitoba Conservation Data Centre (Manitoba Conservation Data Centre 2024) and are based on the NatureServe global conservation status ranks (NatureServe n.d.). Ranks range from 1 (Critically Imperiled) to 5 (Secure).
S1 - **Critically Imperiled,** At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.
S2 – **Imperiled,** At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.

S3 – **Vulnerable,** At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 - **Apparently Secure,** At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S#S# - **Range Rank** —A numeric range rank (such as S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. Ranges cannot skip more than two ranks (such as SU is used rather than S1S4).
SH - **Possibly Extirpated,** Known from only historical records but still some hope of rediscovery. There is evidence that the species may no longer be present in the jurisdiction, but not enough to state this with certainty. Example (1) a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) a species has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.
[b] (Jacobs 2024)
— = not applicable
COSEWIC = Committee on the Status of Endangered Wildlife in Canada
SARA = *Species at Risk Act*
DS = De Salaberry
LB = La Broquerie

Four of the species in Table 5-2 are Historical (SH) records, meaning there is evidence that the species may no longer be present in the jurisdiction, and one species, Neglected milkvetch, does not occur within 100 m of the amended project area; MBCDC did not recommend mitigation for these species (Murray, pers. comm. 2025).

The MBCDC has recommended mitigation for the remaining rare plants in Table 5-2, and those occurrences are shown on Figures 5-1a to 5-1d, and described below.

Within 30 m of the La Broquerie route, there are recorded occurrences of two rare species (Narrow-leaved agalinis and Riddell's goldenrod). Narrow-leaved agalinis grows in dry to moist, sparsely-vegetated prairie on calcareous soils and is verified extant as of 2023 (Friesen n.d.). Habitat information on Riddell's goldenrod is below. Narrow-leaved agalinis and Riddell's goldenrod co-occur in patches along the conveyance route in E-10-7-7 E1M, W-11-7-7 E1M and W-15-7-7 E1M (Figures 5-1d). The MBCDC recommends mitigating to avoid disturbance or destruction of individuals of narrow-leaved agalinis and Riddell's goldenrod to avoid contravening the Manitoba *Endangered Species Act* and the Federal SARA (Murray, pers. comm. 2025). Preliminary mitigation for known rare plant occurrences is presented in Table 5-4.

Within 30 m of the De Salaberry route, there are recorded occurrences of nine rare species, of which seven are historical and two are verified extant: Canada moonseed, and Fascicled ironweed. Canada moonseed was verified extant as of 2013. It grows in moist woods and thickets, often along streams, bluffs, and rocky hillsides (Flora of North America 1993). The recorded occurrence of Canada moonseed is immediately east of the De Salaberry conveyance route on the north bank of the Rat River (Figures 5-1a). The MBCDC recommends mitigating Canada moonseed to avoid disturbance or destruction of individuals (Murray, pers. comm. 2025). Fascicled ironweed is discussed later in this subsection. Of the historical occurrences, MBCDC recommends mitigation for two of them: Riddell's goldenrod, and Whorled milkwort. Whorled milkwort was recorded as 1 mile (1.6 km) east of Otterburne (Figures 5-1b) and no subsequent surveys have been conducted. Since the location description is relatively precise and the species is known to inhabit roadsides, the MBCDC recommends surveying for whorled milkwort (Murray, pers. comm. 2025). Riddell's goldenrod is discussed later in this subsection.

Fascicled ironweed is listed as Endangered by the Manitoba *Endangered Species Act*, and the Federal *SARA*, and Riddell's goldenrod is listed as Threatened by the Manitoba *Endangered Species Act*, and Special Concern by the Federal *SARA*. These species have recorded occurrences within a 30 m buffer of the amended project area. The record of Riddell's goldenrod along the La Broquerie conveyance route (discussed in the earlier paragraphs) is verified as an extant population as of 2001, and the record on the De Salaberry conveyance route is historical (1954). Along the De Salaberry route, the 1954 record of Riddell's goldenrod describes the location as 5.5 miles (8.85 km) east of Otterburne which is along NW/NE 24-6-4 E1M (Figures 5-1c). Three subsequent surveys (1997, 1998, and 2022) in the area did not locate Riddell's goldenrod. The MBCDC recommends surveying along the De Salaberry route segment for Riddell's goldenrod (Murray, pers. comm. 2025).

The record of Fascicled ironweed occurs on the De Salaberry route along the Rat River (north of Grant Street; Figures 5-1b) and was last observed in 2022. The MBCDC recommends mitigating disturbance or destruction of Fascicled ironweed plants or their critical habitat to avoid contravening the Manitoba *Endangered Species Act* and the Federal SARA (Murray, pers. comm. 2025).

Figures 5-1a to 5-1d. Known Rare Plant Occurrences

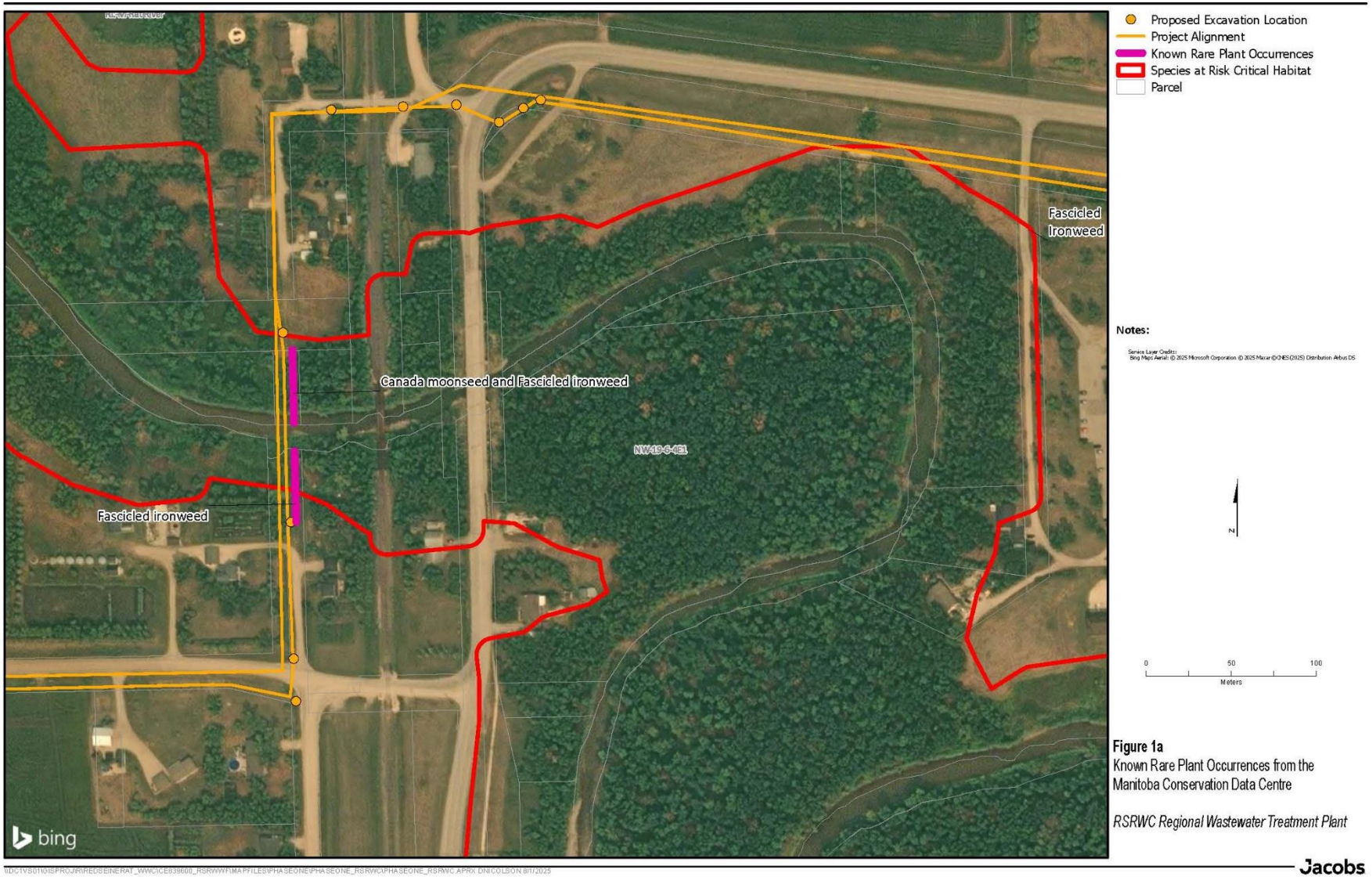


Figure 1a
Known Rare Plant Occurrences from the Manitoba Conservation Data Centre

RSRWC Regional Wastewater Treatment Plant

Jacobs

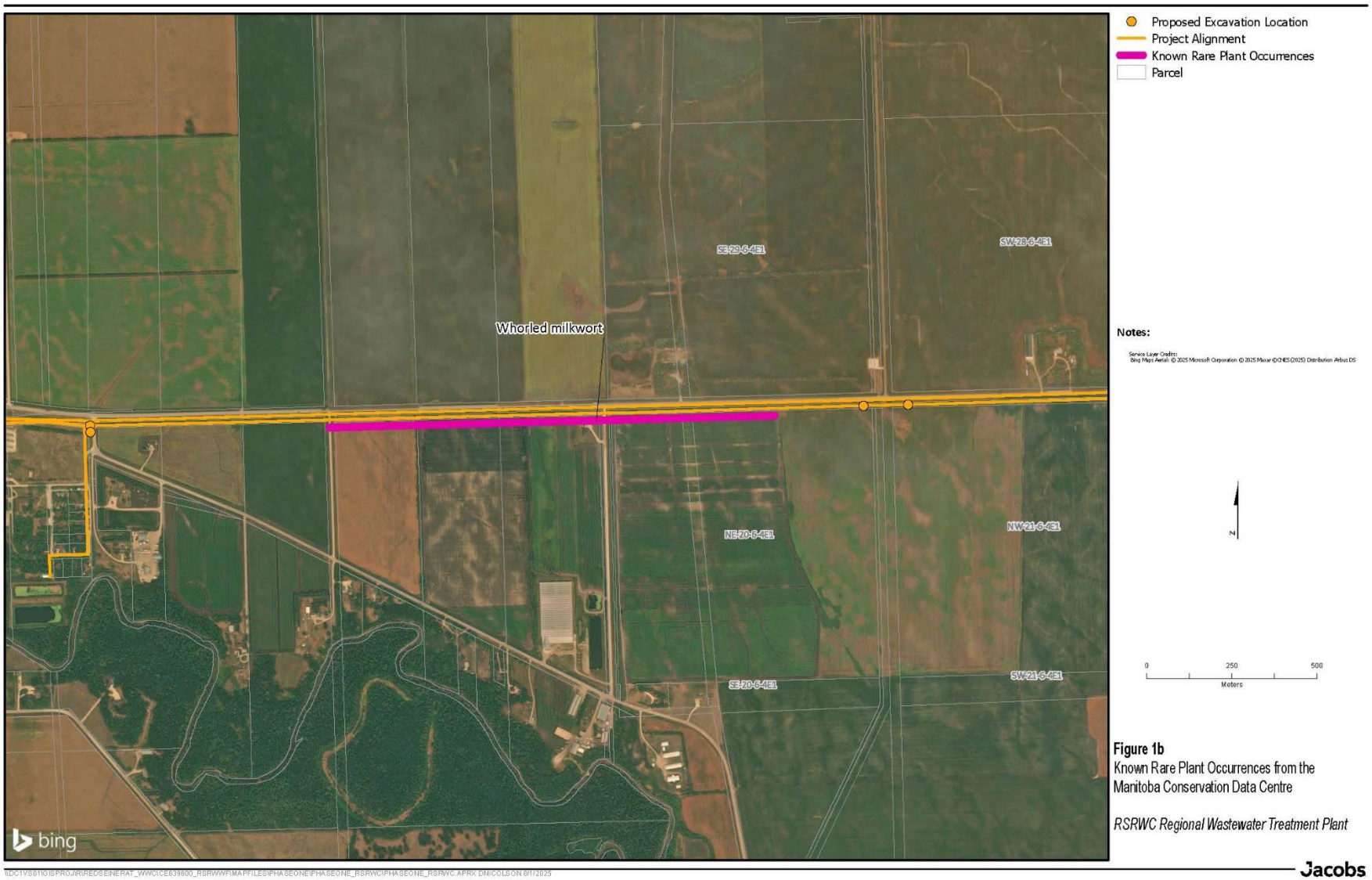
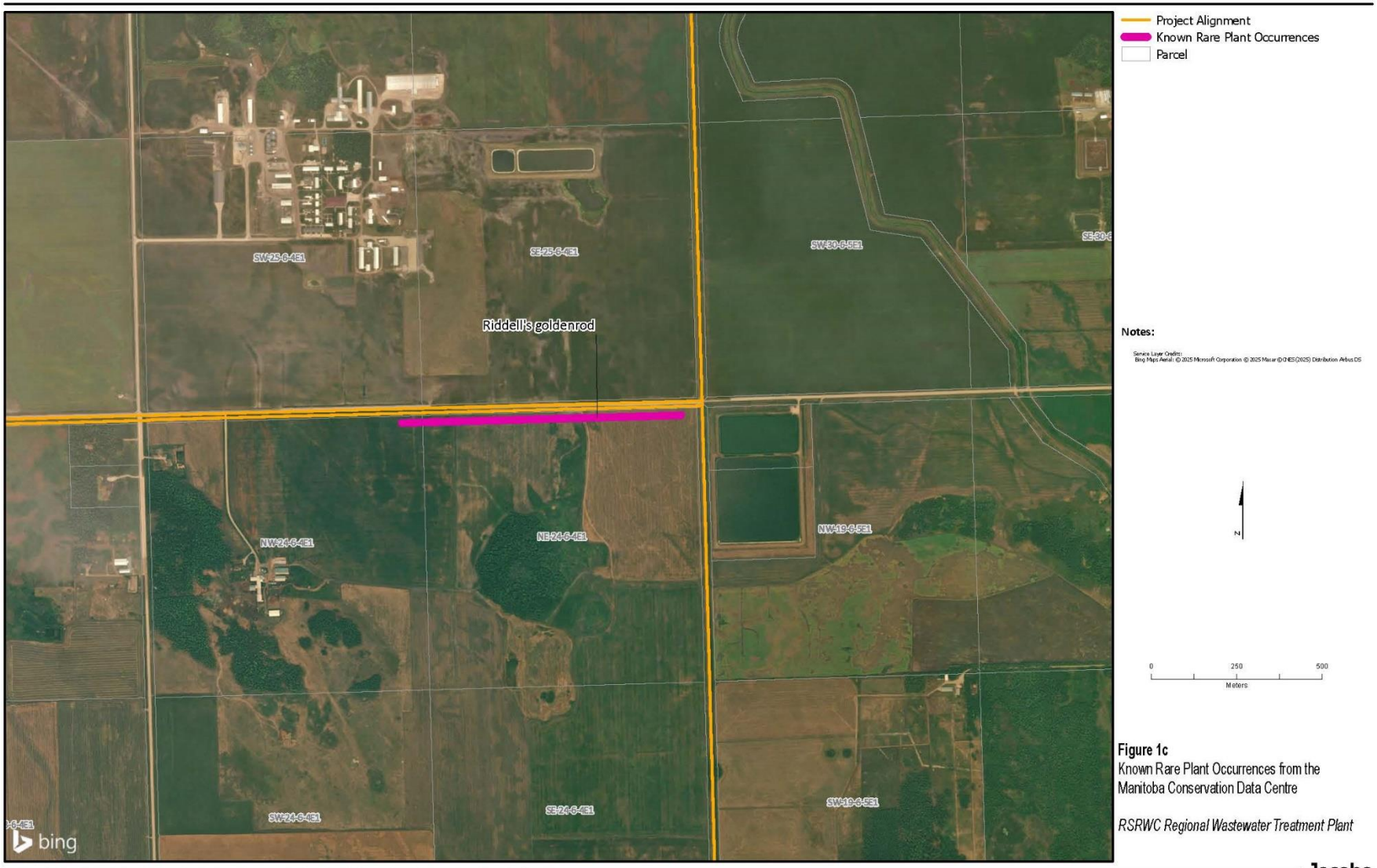


Figure 1b
Known Rare Plant Occurrences from the Manitoba Conservation Data Centre

RSRWC Regional Wastewater Treatment Plant

Jacobs


Project Alignment
Known Rare Plant Occurrences
Parcel
Riddell's goldenrod
SW-25-6-4E1
SE-25-6-4E1
SW-30-6-5E1
NW-24-6-4E1
NE-24-6-4E1
NW-19-6-5E1
SW-24-6-4E1
SE-24-6-4E1
SW-19-6-5E1
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Notes:
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Figure 1c
Known Rare Plant Occurrences from the Manitoba Conservation Data Centre
RSRWC Regional Wastewater Treatment Plant
Jacobs

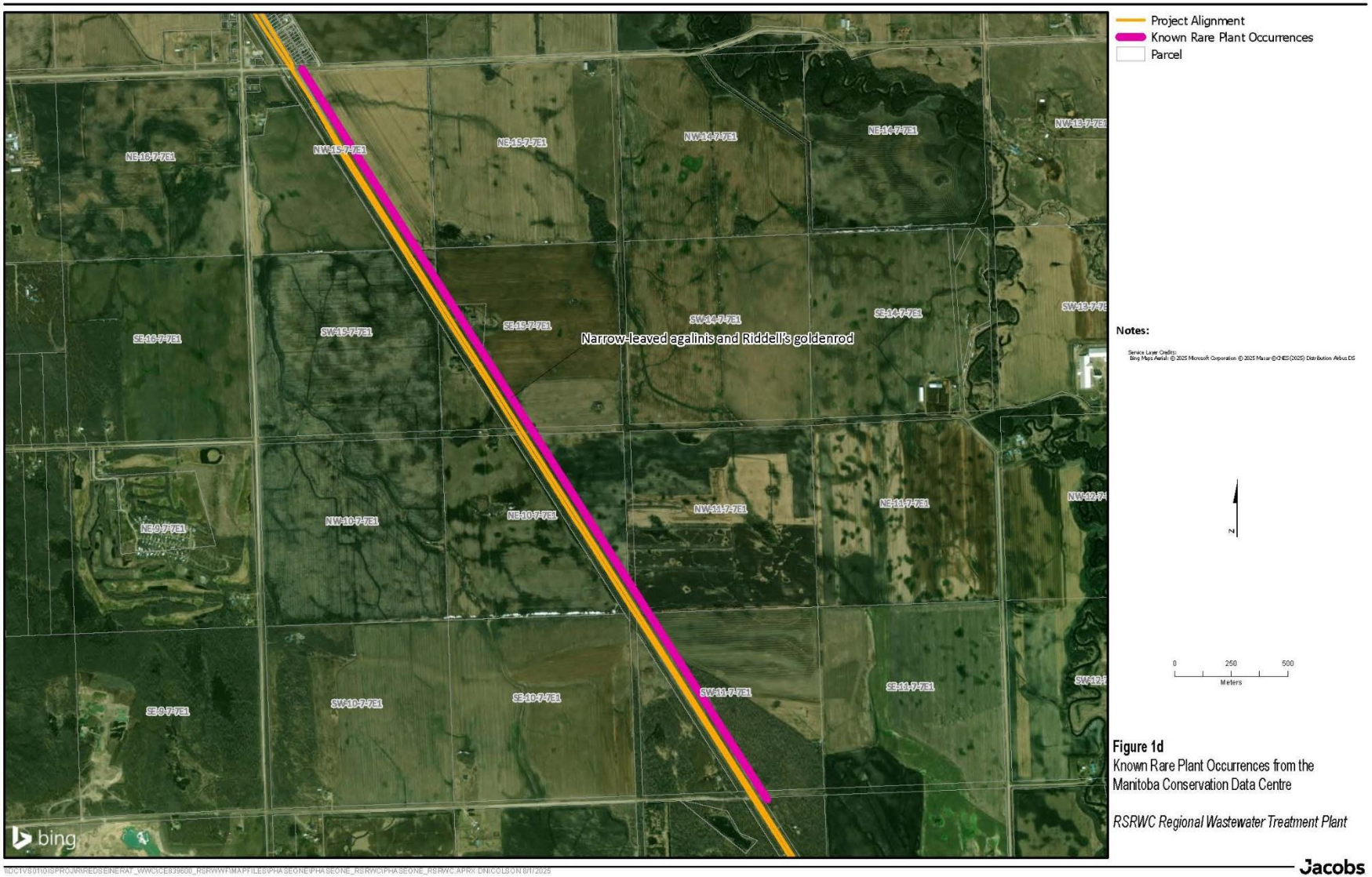

Figure 1d
Known Rare Plant Occurrences from the Manitoba Conservation Data Centre

RSRWC Regional Wastewater Treatment Plant

Jacobs

Habitat for Riddell's goldenrod within the Manitoba Tall Grass Prairie Preserve is protected under the Manitoba *Endangered Species Act*. Riddell's goldenrod occurs in southeastern Manitoba from the United States border as far north as Kleefeld and as far east as Giroux, in relatively undisturbed roadsides, especially in habitats supporting fen- or prairie-like communities or in areas where open conditions are maintained, such as along railway lines (Environment Canada 2015). Populations occur in sites with moist to wet calcareous sandy loam soils where the water table is at or above the soil surface until mid-June (Environment Canada 2015). Fascicled ironweed also has critical habitat within the amended project area and so is further discussed below.

Critical habitat is defined as the habitat necessary for the survival or recovery of an endangered, threatened or extirpated species listed under SARA. The Critical Habitat for Species at Risk National Dataset was queried to determine the presence of critical habitat within the amended project area (Environment and Climate Change Canada [ECCC 2025a]). Table 5-3 lists species with critical habitat within a 1-km buffer of the amended Project components.

Table 5-3. Species with critical habitat within 1-km of the Amended Project Components

Common Name	Scientific Name	S-Rank[a]	Provincial Status	SARA Status	COSEWIC Status
Fascicled ironweed	*Vernonia fasciculata*	S1	Endangered	Endangered	Endangered
Small white lady's-slipper	*Cypripedium candidum*	S2	Endangered	Threatened	Threatened

From the Critical Habitat for Species at Risk National Dataset (ECCC 2025a)

[a] Provincial (S) ranks are assigned by the Manitoba Conservation Data Centre (Government of Manitoba n.d.c) and are based on the NatureServe global conservation status ranks (NatureServe n.d.). Ranks range from 1 (critically imperiled) to 5 (secure).

COSEWIC = Committee on the Status of Endangered Wildlife in Canada
SARA = *Species at Risk Act*

Critical habitat for Fascicled ironweed includes habitat occupied by its two extant populations and all natural biophysical attributes within a 300 m critical function zone extending from the outer boundary of occupied habitat (Environment Canada 2022). In the region of the amended project area, critical habitat for Fascicled ironweed extends along the Rat River from its northern extent at the Red River to just south of where it intersects Rd 205 near St-Pierre-Jolys. The amended project area intersects critical habitat for Fascicled ironweed on the north and south shores of the Rat River west of the community of Otterburne, and approximately 1 km east of the community of Otterburne in the south ditch of Otterburne Road 34N in parcel SL-00ORR (Figures 5-1a). The MBCDC recommends surveying the area for Ironweed occurrences and determining if the conveyance route is in critical habitat based on biophysical attributes (Murray, pers. comm. 2025). The areas of Fascicled ironweed include: open to semi-open native riparian areas (river terraces, oxbows, creek banks, wetlands); moist to wet meadows; floodplains, low-lying moist depressions or swales in tallgrass prairie; roadsides/ditches; or occasionally drier upland tallgrass prairie; and the biophysical attributes include: trees when present are deciduous (such as green ash, American elm, Manitoba maple, eastern cottonwood); shrubs are sparse to absent; herbaceous layer ranges from sparse to dense native vegetation (may have some non-native; isn't dense grasses/sedges or dense shade); soil is typically moist to wet clay; and habitat is seasonally flooded (Environment Canada 2022).

Fascicled ironweed occurs in southern Manitoba in the Lake Manitoba Plain Ecoregion, with the largest of its two extant populations found near the Rat River as of 2019. Its second population has been reduced to a small patch near Lowe Farm, east of Morris. Habitat for Fascicled ironweed in the Rat River locale includes open to semi-open deciduous treed riparian areas with moist to wet clay soils, and in ditches among introduced grass species. Threats to Fascicled ironweed include agriculture, residential

development, transportation and service corridors, and pressure from introduced species (Environment Canada 2022). Suitable habitat for Fascicled ironweed is present within the amended project area and is protected under the Manitoba *Endangered Species Act*.

Portions of the amended project area occur within critical habitat for the Kleefeld population of the Small white lady's slipper. In Manitoba, critical habitat for Small white lady's slipper is moderately-drained remnants of open native prairie with or without sparse shrub cover or between tree bluffs on flat to undulating topography (Environment Canada 2014). This remnant prairie is often located within roadside ditches and rights-of-way, bounded by intersecting or adjacent roads and nearby property lines that create conditions of uniform hydrology. Approximately 80% of Manitoba's populations intersect roadside habitat (Environment Canada 2014). The amended project area intersects the corner of a 9.6 km x 9.6 km of critical habitat for Small white lady's slipper. The eastern-most 800 m length of the De Salaberry conveyance route (in 24-6-4 E1M) intersects the critical habitat. The nearest known Small white lady's-slipper occurrence is 1.6 km from the conveyance route. Based on the project description, the MBCDC has no concerns for this occurrence (Murray, pers. comm. 2025). During the field survey in June 2025, surveyors looked for Small white lady's slipper but did not observe it.

The amended project area crosses an Environmental Policy Area as per the RM of La Broquerie Development Plan (Bylaw 6-2018, Section 3.5) at A-Drain in NW 31-6-8 E1M on an existing road east to the La Broquerie lagoons from Principale Street on the northeast edge of the town of La Broquerie (RM of La Broquerie 2020). The conveyance pipeline in this area will be installed by HDD. Consultation will be conducted with the RM of La Broquerie to comply with local Environmental Policy regulations concerning the spread of invasive species and the protection of riparian habitat.

At the new outfall route, the amended project area intersects an Environmental Policy Area as per the Macdonald-Ritchot Planning District Development Plan (Bylaw 2/22, Section 4.6) where the outfall meets the Red River and adjacent riparian habitat west of Provincial Road 200 near Carrière Drive (Macdonald-Ritchot PD 2023). The conveyance pipeline in this area will be installed by HDD. To comply with local regulations concerning alterations to riparian areas and shorelines, consultation will be conducted with the Macdonald-Ritchot Planning District.

5.2.2 Potential Effects on Vegetation

No new effects were identified beyond what was assessed in the Original EAP, Section 5.4. The conclusions remain the same.

5.2.3 Mitigation Measures

Mitigation measures required for rare plants and invasive plant species remain primarily the same as that presented in the Original EAP.

The following additional measures are the responsibility of a RSRWC representative or delegate:

- Engage with the Red River Weed Control District to identify pesticides permitted within the RM of La Broquerie

The following additional measures are the responsibility of the contractor:

- Conduct field surveys prior to the commencement of construction to identify rare plants and determine site-specific mitigation according to the Contingency Plan in Appendix B. If a vegetation species listed by the federal SARA or Manitoba *Endangered Species Act* is observed prior to construction, site-specific

mitigation will be developed in consultation with appropriate Government authorities. Preliminary mitigation for known rare plant occurrences is presented in Table 5-4.

Table 5-4. Preliminary Mitigation for Known Rare Plant Species

Common Name	Scientific Name	Location of Known Occurrence	Preliminary Mitigation
Canada moonseed	*Menispermum canadense*	Immediately east of the De Salaberry conveyance route on the north bank of the Rat River. Last observed in 2013.	Horizontal Directional Drill (HDD) is the planned installation method for the conveyance route under the Rat River.
Fascicled ironweed	*Vernonia fasciculata*	Critical Habitat extends along the Rat River from the Red River to near St-Pierre-Jolys, due to multiple known locations along the river. This includes the north and south shores of the Rat River (north of Grant Street) as well as the south ditch of Otterburne Road 34N in parcel SL-00ORR approximately 1 km east of the community of Otterburne on the De Salaberry route. Last observed in 2022. The MBCDC recommends surveying for Ironweed occurrences and determining if the conveyance route is in critical habitat for this species based on biophysical attributes.	Horizontal Directional Drill (HDD) is the planned installation method for the conveyance route under the Rat River.
Narrow-leaved Agalinis	*Agalinis tenuifolia*	Along the La Broquerie conveyance route in E-10-7-7 E1M, W-11-7-7 E1M and W-15-7-7 E1M. Last observed in 2023.	Conduct a rare plant survey to confirm presence within project area. If plants occur on project area, fence and avoid as many as feasible (such as gap in spoil pile).
Riddell's Goldenrod	*Solidago riddellii*	Along the La Broquerie conveyance route in E-10-7-7 E1M, W-11-7-7 E1M and W-15-7-7 E1M. Last observed in 2001. Also, historical occurrence from 1954, 8.85 km east of Otterburne, within NW/NE-24-6-4 E1M. The MBCDC recommends surveying for Riddell's goldenrod (Murray, pers. comm. 2025).	Conduct a rare plant survey to confirm presence within project area. If plants occur on project area, fence and avoid as many as feasible (such as gap in spoil pile).
Whorled Milkwort	*Polygala verticillata* var. *isocycla*	Historical occurrence from 1956, 1.6 km east of Otterburne, N-20-6-4 E1M. The MBCDC recommends surveying for whorled milkwort (Murray, pers. comm. 2025).	Conduct a rare plant survey to confirm presence within project area. If plants occur on project area, fence and avoid as many as feasible (such as gap in spoil pile)..

(Murray, pers. comm. 2025)

Given the scope of the amended project area, the potential effects to vegetation may not be completely avoided, reduced, or eliminated through the implementation of mitigation measures. The predicted adverse residual effects to vegetation include the following:

- Loss or damage to plant species of conservation concern
- Introduction or spread of invasive species.

Due to the presence of rare plant critical habitat polygons, previously recorded rare plant occurrence buffers, and suitable habitat for those rare species, in the project area there is high potential for encountering plant species of conservation concern, including Riddell's goldenrod, and Fascicled ironweed which are listed by SARA, and the Manitoba *Endangered Species Act* (and the project area traverses Critical Habitat for Fascicled ironweed), Canada moonseed, and Narrow-leaved agalinis. The project area traverses approximately 800 m length of Critical Habitat for Small white lady's slipper, however this is a 10 km by 10 km Critical Habitat area, the closest known occurrence is 1.6 km away, and the MBCDC is not concerned about an interaction in this location (Murray, pers. comm. 2025).

A data sharing agreement has been signed by Jacobs with the MBCDC to receive more precise locations of SARA and provincially-listed species to inform the construction of the additional project scope.

All watercourse and drainage crossings will be crossed using trenchless construction methods, which will mitigate disturbance to native vegetation in riparian habitats. It is expected that all roads will be trenchless crossings as well, which will mitigate disturbance to native vegetation in roadside habitats. Most of the construction will be by HDD, which will result in minimal surface disturbance. Clearing of trees and other vegetation may be necessary in some areas to provide adequate space for equipment at entry and exit points. Open excavation may be required where the La Broquerie route runs along PR 210, which could involve tree clearing. This area may interact with areas of concern highlighted by the MBCDC.

Construction in areas of concern for SARA-listed species and areas of Critical Habitat are proposed to be completed by trenchless methods, where possible. As such, with the proposed methods a *SARA* permit should not be required. Entry and exit HDD locations will be strategically placed in consideration of Critical Habitat and of SARA-listed species, which include; the conveyance segment in N-24-6-4 E1M at the east end of the De Salaberry route where there is critical habitat for Small white lady's slipper, sections E-10-7-7 E1M, W-11-7-7 E1M and W-15-7-7 E1M on the La Broquerie route where there is SARA-listed Riddell's goldenrod (as well as the provincially-listed Narrow-leaved agalinis), approximately 1 km east of Otterburne on the south side of Otterburne Road 34N, and the Rat River on the De Salaberry route.

It is anticipated that construction will require the clearing of native vegetation within the amended project area, which could result in loss or damage to plant species of conservation concern within the area. With the application of mitigation measures, the duration of a residual effect to plant species of conservation concern is predicted to be medium-term; however, the effect could occur periodically, if vegetation management was required during the operations phase. Depending on the location of vegetation management and the type of vegetation species, as well as the implementation of mitigation, vegetation management may or may not affect plant species of conservation concern. For example, if rare vegetation could be avoided within the amended project area, then vegetation management would not likely be needed in that area during construction; however, vegetation management could still be needed during operation of the Project.

Vegetation management (such as mowing) along the constructed rights-of-way and within road ditches will be conducted by the owner (that is, the rural municipalities) following the commencement of the operations phase. Where the responsibility for the rights-of-way is turned over from RSRWC to other

owners following commencement of operations, the assessment of potential effects to vegetation is considered out of scope of the Project.

5.2.4 Residual Effects

While the effects will extend over the life of the additional Project scope, the effect is considered reversible to preconstruction conditions following decommissioning, when vegetation will be permitted to regenerate in the amended project area. However, ongoing disturbance to vegetation is anticipated during maintenance of the amended project area during operations.

Overall, where mitigation measures are implemented, the magnitude to plant species of conservation concern is considered negligible to low.

Weed introduction is difficult to control and may persist on the landscape even if mitigation measures are implemented. Along the water conveyance system, the primary pathway for weeds of concern to be introduced or spread is during construction. Vegetation management (such as mowing or herbicide application, where permitted) will resolve issues with weeds of concern over time following construction or decommissioning. Therefore, the effects are anticipated to be short- to medium-term in duration.

The residual effect for invasive species is the same as that presented in the Original EAP, Section 5.4.

5.2.5 Summary

Mitigation for plant species of conservation concern, including two SARA-listed species, and an area of Critical Habitat for one of those species, includes a survey to confirm presence within the project area, preliminary mitigation measures (primarily avoidance) for rare plant species with high potential to occur within the project area, HDD (as much as is reasonably possible) under the Critical Habitat and one of the SARA-listed populations, and avoidance of the other SARA-listed populations. Site-specific mitigation for vegetation species listed by SARA or the Manitoba *Endangered Species Act* will be developed in consultation with appropriate Government authorities.

Potential effects to vegetation are considered reversible to preconstruction or equivalent conditions following construction. There is potential for periodic disturbance through operations; however, the potential effect can be reduced through avoidance during vegetation management in the operations phase.

Mitigation to prevent the introduction or spread of invasive plant species is the same as that presented in the Original EAP.

Overall, following the implementation of mitigation, the effects of the amended project scope on vegetation are anticipated to be negligible to low.

5.3 Assessment of Effects on Surface Water Resources

Construction and operation of the conveyance system, PWL, and the WWTF, including the outfall, may affect surface resources, including wetlands and watercourses.

5.3.1 Description of the Existing Conditions

5.3.1.1 Wetlands

A desktop review was conducted using satellite imagery and publicly available datasets (Manitoba Habitat Heritage Corporation and Manitoba Conservation and Water Stewardship 2015, Natural Resources Canada 2007-2011) to determine wetland class and distribution within the amended Wetlands LSA. Satellite imagery was reviewed at varying scales of approximately 1:2,000 to 1:15,000 and was interpreted using key indicators (such as geomorphology, surficial hydrology, and vegetation type and cover).

Wetlands identified during the desktop review in the amended Wetland LSA were classified using Stewart and Kantrud (1971) and the CWCS (NWWG 1997). Stewart and Kantrud (1971) was used for the classification of marsh and shallow water wetlands (that is, Class I, II, III, IV, V and VI wetlands), and the CWCS (NWWG 1997) was used when classifying treed and shrubby swamps located across the prairies. Prairie wetlands are highly complex and difficult to classify due to both spatial and temporal variability in their defining characteristics. For these wetlands, hydrology, water chemistry, and biology can change dramatically throughout a season or from year to year as a result of changing weather conditions. Results of the original wetland assessment are provided in the Original EAP. The results presented herein pertain to the RM of La Broquerie, additional RM of De Salaberry conveyance systems, and the PWL.

Wetland reconnaissance of the amended project area was conducted by a Wetland Specialist at wetlands where access was available and wetlands were visible from roadsides along the amended project area from June 4 to 5, 2025. During the field reconnaissance, representative wetland classes and delineations identified during the desktop review were confirmed or refined, as warranted, and information was collected on wetland location, vegetation, hydrology, and existing disturbance where possible.

A total of 23 wetlands were encountered within the amended project area. Wetland classes encountered include swamps (shrub) and marshes (Class I, II, and III). No wetlands were identified along the PWL. Wetlands and artificial ponds encountered within the amended project area and identified within the amended Wetlands LSA are summarized in Table 5-5.

Table 5-5. Wetlands and Artificial Ponds Encountered by the Project Area

Environmental Feature	Amended LSA (ha and % of LSA)[a], [d]	Additional Conveyance Area (ha and % of Conveyance project area)[a], [b]
Total number of artificial ponds crossed [c]	24	5
Total number of wetlands crossed	325	23
Total area of wetland habitat encountered (ha)	91.84 ha (2.08%)	0.60 ha (0.31%)

[a] Due to rounding, the sum of areas and the percentage of total areas may not add up to the actual total project area.

[b] A 5 m buffer was added to the conveyance centerlines to create the project area.

[c] Artificial ponds are not considered wetlands.

[d] The LSA calculations include wetlands from the EAP and the amendment.

ha= hectare

5.3.1.2 Water Quantity – Red River Basin

The amended project area does not result in new interactions related to the water quantity. No new potential effects, mitigation measures, or residual effects were identified beyond those discussed in the Original EAP, Section 6.5.3.

5.3.1.3 Fish, Fish Habitat and Freshwater Mussels

The amended project area consists of nine potential watercourse or drainage interactions identified during desktop and field assessments for the wastewater conveyance system route. These interactions are summarized in Table 5-6. They do not result in new interactions related to the fish, fish habitat, and freshwater mussels. No new potential effects, mitigation measures, or residual effects were identified beyond those discussed in the Original EAP, Section 6.5.4.

Table 5-6. Potential Watercourse and Drainage Crossings on the Proposed Wastewater Conveyance System Route

Site No	Interaction Type	Watercourse Name	Latitude/Longitude	Field Comments (June 2025)	Desktop Comments
WC-23	Crossing	Rat River	49.501629 -97.052949	Channel width approximately 15 m at the crossing. Banks are vegetated with grasses and sedges. Beaver activity (beaver lodge, beaver-chewed vegetation) noted within 50 m downstream of the crossing.	Rat River flows in a northwesterly direction at the crossing and has connectivity to the Red River.
WC-24	Parallels Drainage	Otterburne East Drain	Start: 49.502355 -97.019112 End: 49.502422 -96.984787	Roadside ditch vegetated with cattails. Mostly dry during field survey, with pockets of shallow standing water. A flood gate is present at the intersection of Otterburne Road 34N and Gobeil Road.	Wastewater conveyance system parallels road within drain for approximately 2.5 km.
WC-25	Crossing	Unnamed Drainage	49.502431 -96.976248	No field assessment due to road access issues.	Drainage between cultivated fields.
WC-26	Crossing	A-Drain	49.528691 -96.505769	Culvert under the road to the La Broquerie lagoon. Culverts are perched approximately 10 centimetre (cm) and partially blocked by woody debris and garbage. Shallow water depth with minimal flow. Banks are vegetated with shrubs and grasses, creating good cover habitat. Banks are undercut at some locations, allowing instream cover for fish species.	Drainage through private property and cultivated fields with connectivity to the Seine River.
WC-27	Crossing	Giroux Drain	59.576813 -96.570343	Manmade drainage ditch vegetated with cattails. Culvert under road, culvert is not visible on north side of road. Shallow surface water has ponded, creating wetland-like conditions. No visible flow.	Drainage through private property and cultivated fields with connectivity to the Seine River.
WC-28	Crossing	Johnson Drain	49.603850 -96.624194	Dry during field survey, culvert under road. Vegetated with cattails. Banks not well-defined. A roadside ditch merges with this feature at the crossing.	Drainage between fields with connectivity to the Seine River Diversion.

Site No	Interaction Type	Watercourse Name	Latitude/Longitude	Field Comments (June 2025)	Desktop Comments
WC-29	Parallels Drainage	Youville Drain	Start: 49.619096 -96.709410 End: 49.619123 -96.732809	Roadside ditch vegetated with cattails. No visible flow, water depth varies from very shallow to approximately 0.5-1 m at east end. Banks are vegetated with grasses.	Wastewater conveyance system parallels north side of Road 42, with drainage on south side of road. For approximately 1.7 km.
WC-30	Crossing	Prefontaine Drain	49.640736 -97.059905	Prefontaine drainage was assessed in August 2023.	Drainage through private property and cultivated fields with connectivity to the St. Adolphe Coulee.
WC-31	Crossing	St. Adolphe Coulee	49.650288 -97.086765	Culvert under Gauthier Road. Flow is partially impounded, causing ponding. Channel width is approximately 12 m by the crossing. Associated with wetland habitat immediately south of the crossing. Banks are vegetated with willows and robust grasses. Beaver dams are located approximately 30 m downstream, and 110 m upstream, of the crossing.	St. Adolphe Coulee flows north from the crossing with connectivity to the Seine River Diversion.

On June 4 and 5, 2025, Aquatic Biologists conducted a field assessment at the proposed outfall location and some of the proposed wastewater conveyance system route (Table 5-6). Photographs of the amended project area and downstream habitat are included in Appendix C.

5.3.1.3.1 Proposed Wastewater Conveyance System Crossings

Most of the proposed wastewater conveyance system route in the amended project area is through disturbed habitat, typically roadside ditches or cultivated field drainages, except for WC-23 and WC-31. During the field survey, most sites were dry or contained pockets of shallow standing water (Appendix C). Beaver activity was observed at WC-23 and WC-31, with extensive ponding at WC-31 due to beaver dam presence. No fish or mussels were observed at sites along the wastewater conveyance system route in the amended project area. There are no documented permanent barriers to fish migration and the amended project area is prone to overland flooding, so there is potential to encounter fish at any of the watercourse or drainage crossings sites, if water is present.

The Rat River (WC-23) was approximately 15 m wide with a substrate of fines and cobbles. The banks were vegetated with some exposed fines and gravels. The left bank was entirely vegetated with grass at the crossing and appeared to have been eroded due to past flooding activity. Water quality was generally favourable, with a temperature of 17.60 degrees centigrade (°C), 9.22 mg/L Dissolved Oxygen (DO), 8.40 pH, and low turbidity. The high-quality run habitat at WC-23 would provide suitable habitat for all life stages of fish. Morphology at the Rat River was mostly uniform upstream and downstream of the crossing, with some sections containing small pools and backwater eddies. Beaver activity, including a beaver lodge on the right bank approximately 35 m downstream of the crossing, was observed.

St. Adolphe Coulee (WC-31) was approximately 12 m wide with a substrate dominated by fines. The site was ponded at the crossing due to the presence of multiple beaver dams along the Coulee, as well as partial impoundment by the road. WC-31 is associated with swamp wetland habitat south of the road. The banks were vegetated with willows and robust grass species. Water quality was less favourable, with a temperature of 18.92°C, 5.28 mg/L DO, 7.70 pH, and moderate turbidity. The flat habitat at the WC-31 crossing would provide suitable habitat for all life stages of fish. Wetland habitat both upstream and downstream of the crossing will also provide habitat benefits for fish species.

5.3.1.3.2 Outfall Drainage

The approximately 75 m long unnamed drainage feature near the proposed outfall structure was mostly dry during the June 2025 assessment and likely experiences intermittent flows (Appendix C). The first 25 m of channel is entirely vegetated with robust grasses and some hydric vegetation (cattails, willows), before transitioning into a forested, high gradient section with rocky riprap substrate. The last 25 m of the feature emerges from the forested area as a narrower channel with fine substrates and steep high banks vegetated with willows, shrubs, and grasses. The channel width of the drainage feature varied from 0.5 m to 7 m, with an average width of 3.5 m.

The drainage provides poor spawning and rearing habitat and no wintering habitat for fish due to low and intermittent flows. During high water events, connectivity to the Red River is possible and fish may use the near the confluence as an area of refuge from high flows. Due to proximity to the Red River, instream work should be avoided during the restricted activity period (RAP) of April 1 to June 30, if water is present.

5.3.1.4 Potable Water Line Route

The PWL route in the amended project area is through disturbed habitat, typically roadside ditches. The route interacts with WC-9 (Prefontaine Drain) that was assessed and listed in the Original EAP. No fish or mussels were observed at the site along the PWL project area. There are no documented permanent barriers to fish migration and the amended project area is prone to overland flooding, so there is potential to encounter fish at the drainage crossing, if water is present.

5.3.1.4.1 Fish and Mussel Habitat Information

There are three freshwater mussel species, the Wabash Pigtoe (*Fusconaia flava*), White Heelsplitter *(Lasmigona complanata*), and Black Sandshell (*Ligumia recta*) that are found within Rat River in the amended project area. However, there are no new potential effects, mitigation measures, or residual effects identified beyond those discussed in the Original EAP, Section 6.5.4 and RAP of April 1 to June 30 [Fisheries and Oceans Canada (DFO) 2013] remains the same.

5.3.1.4.2 Species of Management Concern

No new aquatic species at risk under the SARA were identified beyond those discussed in the Original EAP, Section 62.4. However, in addition to the federally listed species, four other aquatic species (one fish and three freshwater mussels) of conservation concern may be encountered within the RSA. The Silver Chub (*Macrhybopsis storeriana*), Saskatchewan-Nelson River populations, is federally listed as Not at Risk (Government of Canada 2025, but in Manitoba, the species is considered for conservation concern due to its limited distribution and habitat specificity. The province may support the only healthy and abundant population of Silver Chub in North America, primarily within the Red and lower Assiniboine Rivers (Government of Manitoba 2023). This species prefers slow-moving waters with soft substrates and is sensitive to changes in water quality and flow regimes.

Three freshwater mussel species, the Wabash Pigtoe, White Heelsplitter, and Black Sandshell, are ranked as S3 (vulnerable) by the Manitoba Conservation Data Centre (MCDC 2024). These species are typically found in medium to large rivers with stable substrates such as sand, gravel, or mud. Like other unionid mussels, they have complex life cycles involving a parasitic larval stage (glochidia) that requires a host fish. Their vulnerability is linked to habitat degradation, water pollution, and barriers to fish movement, which can disrupt reproduction and dispersal. While not listed under the federal SARA, these mussels are considered conservation priorities within Manitoba due to their ecological sensitivity and declining trends across their broader ranges. These species are likely to be present at the Rat River crossing location.

5.3.2 Potential Effects on Surface Water Resources

The amended project area does not result in new interactions related to surface water resources. No new potential effects, mitigation measures, or residual effects were identified beyond those discussed in the Original EAP, Section 6.3.

5.3.3 Mitigation Measures

The following DFO and Provincial guidance are incorporated into the Project's mitigation plan:

- Measures to protect fish and fish habitat (DFO 2025)
- Interim standard: in-water site isolation (DFO 2023)

Mitigation measures that are to be implemented by RSRWC to avoid or reduce the potential for residual effects on Surface Water Resources that remain are provided in the Original EAP, Section 6.5.4.

5.3.4 Residual Effects

No new residual effects were identified beyond those discussed in the Original EAP, Section 6.5.4.

5.4 Assessment of Effects on Groundwater Quality and Quantity

This section examines the regional / local hydrogeological attributes of existing aquifers, Project site conditions, possible effects on groundwater from construction activities over the amended project area, and identification of relevant mitigation measures. Effects on groundwater include any changes that the proposed works may have on groundwater quality and quantity.

Additionally, this section has been updated to incorporate the localized and regional hydrogeological context relevant to the expanded project scope, including expansion of the WWTF, updated outfall location, a PWL, and construction and operation of the wastewater conveyance network. Some sections have been retained and updated to include the expanded project area, while other sections, only relevant to the Original EAP have been omitted. This makes sure that the amended project area and the overall hydrogeological context are accurately represented.

5.4.1 Description of Existing Conditions

5.4.1.1 Hydrogeology

The amended project area does not result in new interactions related to hydrogeology. No new potential effects, mitigation measures, or residual effects were identified beyond those discussed in the Original EAP, Section 7.4.

Previous studies and data from the Ground Information Network (GIN) database, identify two primary hydrogeological bedrock units under the amended project area as well as the broader project area, (which also encompasses the regions covered by the expansion). These units are the Ordovician Winnipeg Formation, composed of poorly lithified sandstones and shale, and the conformably overlying carbonate rocks of the Ordovician Red River Formation (Betcher et al. 1995; Rutulis 1986; GIN 2021). The regional dip of the bedrock units is gentle to the southwest. Additionally, some localized groundwater producing sand and gravel layers within the till are present in parts of southeastern Manitoba including localities within the amended project area (such as southeast area of RM of De Salaberry, and east central area of RM of La Broquerie; GIN 2021; Wang et al. 2008).A natural fresh water-salt water boundary exists within both the carbonate and the sandstone aquifers just east of the Red River. This boundary occurs just west of the Rat River in the RM of de Salaberry, and the 'location and potential migration' of this boundary remains a persistent issue for the area (Government of Manitoba 2011b). According to Grasby and Betcher (2002) the saline waters occur naturally and are attributed to deeply sourced Williston Basin waters which flow up dip and merge with fresh groundwater.

5.4.1.2 Project Site Conditions (Amended Project Area)

Geotechnical considerations and groundwater monitoring are currently being conducted by TREK Geotechnical in association with the new construction plans. As such, standpipes have been installed in six (out of a total of 26) new geotechnical boreholes at the following locations: Otterburne lagoon lift station, Providence lagoon lift station, La Broquerie lagoon lift station, Rat River crossing (south), Rat River crossing

(north), and Carrière outfall. The latter three locations also include the installation of Vibrating Wire (VW) piezometers. Preliminary water levels (recorded after drilling but likely before equilibrium) were recorded at three locations: Otterburne lagoon lift station (2.6 m), La Broquerie lagoon lift station (2.1 m), and Rat River crossing (south) (11.9 m). The complete results of groundwater monitoring are not yet available. For the latter six boreholes, total depths range from 9.1 to 20.3 meters (m), with bedrock not intercepted in any boreholes.

A geotechnical report containing the ongoing monitoring data is being prepared by TREK Geotechnical (2025, in preparation).

5.4.1.3 Groundwater Users (Area Water Supply)

The amended project area does not result in new interactions related to the groundwater users. No new potential effects, mitigation measures, or residual effects were identified beyond those discussed in the Original EAP, Section 7.4.

5.4.2 Effects on Groundwater Quality and Quantity

Important considerations for assessing the vulnerability of an aquifer to contamination from development include the type, thickness, and extent of geology / soils overlying the aquifer.
Betcher et al. (1995) defined a pollution hazard zone as 'an area where freshwater aquifers are overlain by less than 6 m of clays, tills or other low-permeability areas'.

Geotechnical drilling results over the amended project area indicate that there are thick layers of overburden above bedrock predominantly comprising glacial derived material (such as till (diamicton) and clay) with the thickness of overburden generally exceeding 20 m (GIN 2021; TREK Geotechnical 2024) The complete lithostratigraphy of the new boreholes associated with the amended project area, including the lithological thicknesses and groundwater levels will be detailed in the TREK Geotechnical Investigation Report (2025, in preparation).

Surface mitigation measures will be implemented and are necessary during construction activities. Changes to the surrounding area could result in alterations to the drainage patterns. The TREK Geotechnical Investigation Report (2025, in preparation) would provide updated recommendations specific to the amended project area.

Potential effects and effect pathways for the amended project in relation to groundwater quality and quantity remain as provided in the Original EAP, Section 7.4. No effects are expected considering the soil type (combined till and clays) and the considerable thickness of this unit (≥ 20 m) overlying aquifer.

5.4.3 Mitigation Measures

To mitigate risks associated with groundwater quality and quantity, a detailed geotechnical investigation, including groundwater monitoring, is being carried out in relation to the amended project area by TREK Geotechnical (2025, in preparation). The mitigation measures outlined below are also proposed to minimize the Project effects.

- Limit construction equipment and vehicle movements to designated roads and pathways within and around work areas, and limit construction equipment in riparian areas, where feasible.
- Repair areas where equipment has compacted soils.
- Develop specific Emergency Response Plans to report chemical leakages and have pumping and sealing protocols in place.

- Confirm proper containment and storage of chemical to avoid leakage.

5.4.4 Residual Effects

No new residual effects were identified beyond those discussed in the Original EAP, Section 7.4.

5.4.5 Summary

a. The Ordovician Winnipeg Formation and the overlying carbonate rocks of the Ordovician Red River Formation are the primary hydrogeological aquifer units under the amended project area. These bedrock units are overlain by thick Quaternary deposits, including tills and glaciolacustrine clays.

Geotechnical investigations and groundwater monitoring are currently being conducted by TREK Geotechnical. Standpipes have been installed in six of 26 new boreholes at various locations, including Otterburne lagoon lift station, Providence lagoon lift station, La Broquerie lagoon lift station, Rat River crossing (south and north), and Carrière outfall. Preliminary water levels have been recorded, and complete groundwater monitoring results are pending. Borehole depths range from 9.1 to 20.3 m, with primary soil constituents being glacial till and clay. A detailed geotechnical report is anticipated for completion in 2025.

It is not anticipated that development/construction activities should adversely affect the active aquifers, in consideration of the regional extent and thickness of the till and clay overburden under the amended project area (>20 m combined thickness), along with stringent surface mitigation measures during construction. However, the upcoming TREK Geotechnical report should be referred to for confirmation of the thickness of clay layers, groundwater levels, and detailed surface mitigation measures.

Surface mitigation measures will be in place and are necessary during construction activities. With implementation of the mitigation measures previously identified as a whole, the potential adverse residual effect to groundwater is considered negligible.

5.5 Assessment on Effects on Wildlife and Wildlife Habitat

The additional infrastructure will result in some disturbance to wildlife and wildlife habitat. The assessment that follows has been based on a review of existing literature, field surveys, and expert opinion.

5.5.1 Description of Existing Conditions

The amended project area remains primarily in the Lake Manitoba Plain Ecoregion within the Prairies Ecozone (including the WWTF, PWL from the town of Niverville to the WWTF, wastewater treatment lagoons, and wastewater conveyance system segments for the communities of Otterburne and Providence College). However, the majority of RM of La Broquerie conveyance system is located in the Interlake Plain Ecoregion within the Boreal Plains Ecozone.

The amended project area remains within generally level terrain that is used primarily for agricultural purposes as well as other disturbances (roads and existing water treatment infrastructure). The wastewater conveyance system will traverse mostly disturbed areas and a small number of isolated areas of native vegetation including grasslands, treed patches, riparian areas, and wetlands. Areas within the greater Wildlife and Wildlife Habitat LSA and RSA have been heavily modified by human development and support infrastructure including agricultural development and roadways. Small areas that are not currently developed include isolated areas of native grasslands, treed patches, riparian areas, and wetlands.

The amended project area does not encounter additional designated parks or protected areas (Government of Manitoba 2017), national wildlife areas (Government of Canada 2025), Migratory Bird Sanctuaries (ECCC 2025b), Important Bird Areas (Bird Studies Canada 2015), Western Hemisphere Shorebird Reserves (WHSRN 2025), or Ramsar Wetlands (Convention on Wetlands Secretariat 2025). The amended project area remains within migratory bird nesting zone B4 (ECCC 2018) where the primary nesting period for (approximately 90%) of migratory bird species is April 26 to August 14. Based upon the Critical Habitat for Species at Risk National Data Set mapping data, the amended areas of the Project's spatial boundaries interact with the following federally identified Critical Habitat for species at risk:

- Bank swallow Final Critical Habitat
- Bobolink Proposed Critical Habitat
- Chimney swift Final Critical Habitat
- Golden-winged warbler Final Critical Habitat
- Red-headed woodpecker Final Critical Habitat
- Whip-poor-will Final Critical Habitat

Species at risk (that is, species that are federally listed on Schedule 1 of the SARA (Government of Canada 2025) or COSEWIC (2025) which have the potential to interact with the Project, were identified based on a desktop review of available information from the area, habitat requirements, and professional judgment. Overall, the habitat along the Project is highly disturbed and lacks the habitat attributes for most grassland specialists that may have once been present in the area. A summary of additional species at risk that have the potential to interact with the amended project area include:

- Chimney swift (listed as Threatened under the *Endangered Species and Ecosystems Act*, Schedule 1 of the SARA and by COSEWIC)
- Dakota skipper (listed as Threatened under the *Endangered Species and Ecosystems Act*, Endangered under Schedule 1 of the SARA and by COSEWIC)
- Eastern tiger salamander (listed as Endangered on Schedule 1 of the SARA and Special Concern by COSEWIC)
- Eastern whip-poor-will (listed as Threatened under the *Endangered Species and Ecosystems Act*, Threatened on Schedule 1 of the *SARA* and Special Concern by COSEWIC)
- Eastern wood-pewee (listed as Special Concern on Schedule 1 of the SARA and by COSEWIC)
- Evening grosbeak (listed as Special Concern on Schedule 1 of the SARA and by COSEWIC)
- Manitoba oakworm moth (listed as Special Concern by COSEWIC)
- Migrant loggerhead shrike (listed as Endangered under the *Endangered Species and Ecosystems Act* and Endangered on Schedule 1 of the SARA and by COSEWIC)
- Monarch (listed as Endangered on Schedule 1 of the SARA and by COSEWIC)
- Red-headed woodpecker (listed as Threatened under the *Endangered Species and Ecosystems Act*, and Endangered under Schedule 1 of the SARA and by COSEWIC)
- Red-tailed prairie leafhopper (listed as Special Concern on Schedule 1 of the SARA and by COSEWIC)
- Snapping turtle (listed as Special Concern on Schedule 1 of the SARA and by COSEWIC)
- Transverse lady beetle (listed as Special Concern on Schedule 1 of the SARA and by COSEWIC)
- Western tiger salamander (listed as Special Concern on Schedule 1 of the SARA and by COSEWIC)

Data was acquired from the Manitoba Conservation Data Centre regarding known wildlife species at risk. Table 5-7 shows known wildlife species at risk with recorded occurrences within a 1-km buffer of the amended project area.

Table 5-7. Wildlife Species at Risk with Recorded Occurrences within 1-km of the Amended Project Area

Common Name	Scientific Name	S-Rank[a]	Provincial Status	SARA Status	COSEWIC Status	New Potential Project Area Interaction[B]	Location	Within 30 m of New Route
Barn Swallow	*Hirundo rustica*	S4B	—	Threatened	Special Concern	No	O and DS	Yes
Bobolink	*Dolichonyx oryzivorus*	S3S4B	—	Threatened	Special Concern	No	O, DS and LB	No
Burrowing Owl	*Athene cunicularia*	S1B	Endangered	Endangered	Endangered	Yes	DS	No
Monarch	*Danaus plexippus plexippus*	S3S4B	—	Endangered	Endangered	Yes	DS	Yes
Northern Leopard Frog	*Lithobates pipiens*	S4	—	Special Concern	Special Concern	No	LB	Yes
Red-headed Woodpecker	*Melanerpes erythrocephalus*	S3B	Threatened	Endangered	Endangered	Yes	O	No

[a] Provincial (S) ranks are assigned by the Manitoba Conservation Data Centre (Government of Manitoba n.d.c) and are based on the NatureServe global conservation status ranks (NatureServe n.d.). Ranks range from 1 (Critically Imperiled) to 5 (Secure).
[B] New species identified since previous EAP iteration.
S1 - **Critically Imperiled,** At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.
S2 – **Imperiled,** At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3 – **Vulnerable,** At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 - **Apparently Secure,** At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S#S# - **Range Rank** —A numeric range rank (such as S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. Ranges cannot skip more than two ranks (such as SU is used rather than S1S4).
SH - **Possibly Extirpated,** Known from only historical records but still some hope of rediscovery. There is evidence that the species may no longer be present in the jurisdiction, but not enough to state this with certainty. Example (1) a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) a species has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.
— = not applicable
COSEWIC = Committee on the Status of Endangered Wildlife in Canada
SARA = *Species at Risk Act*
DS = De Salaberry Conveyance Route
LB = La Broquerie Conveyance Route
O = Outfall Location

5.5.1.1 La Broquerie Conveyance Route

Within 1 km of the La Broquerie conveyance route, there are two species at risk recorded by MBCDC:

- bobolink; and
- northern leopard frog (within 30 m).

Both species at risk are reported to be verified extant, last observed in 2023. Bobolink depend on open grassland habitats such as pastures, meadows, and prairies for nesting and breeding, typically building their nests on the ground beneath tall grasses and forbs. As reported by the MBCDC, there is no concern for bobolink along the conveyance network due to low breeding evidence (Murray, pers. comm. 2025). Northern leopard frogs inhabit moist landscapes, including wetlands, grasslands, and the edge of water bodies. Northern leopard frogs have been reported to be of no concern by the MBCDC (Murray, pers. comm. 2025).

5.5.1.2 De Salaberry Conveyance Route

Within 1 km of the De Salaberry route, there are recorded occurrences of four species at risk:

- barn swallow (within 30 m);
- bobolink;
- burrowing owl; and
- monarch (within 30 m).

Three of these species at risk are verified extant, barn swallow and bobolink as of 2013, and monarch as of 2023. One of the species is historical, burrowing owl, last observed in 1981 with relatively high locational precision. Barn swallow nest in semi-open to open areas, typically nesting on vertical surfaces like barn rafters, bridges, or anywhere with sufficient cover and access to open fields for foraging. Both barn swallow and bobolink have been reported to be of no concern due to low breeding evidence by the MBCDC (Murray, pers. comm. 2025).

Monarch butterflies inhabit open landscapes like prairies, meadows and roadsides where milkweed grows. Monarch butterflies have also been reported to be of no concern by the MBCDC (Murray, pers. comm. 2025).

Burrowing owl inhabit open, dry landscapes like grasslands and prairies, where they roost in underground burrows, often those abandoned by other wildlife (that is prairie dogs or ground squirrels). They rely on short vegetation and unobstructed sightlines to hunt. The amended project area conveyance system alignment follows existing public roads and traverses predominantly cultivated land, offering low-quality breeding and nesting habitat for burrowing owls. Although the species was last recorded in the area in 1981, the MBCDC Wildlife Branch has expressed concern that it may still be present. A survey was therefore recommended to determine if suitable nesting conditions remain (Murray, pers. comm. 2025). Since its last observation in 1981, the breeding distribution of the burrowing owl in Manitoba has receded towards the southwest corner of the province (if not entirely extirpated). Since 2006, up to 13 breeding pairs of burrowing owl have been confirmed in Manitoba; however, no nests were recorded in 2014 or 2015. Although it may be premature to declare the species extirpated in the province, it is now considered an irregular breeder, likely with fewer than 10 pairs remaining (COSEWIC 2017). Given the cultivated nature of the conveyance network, and current population trends, burrowing owls are not expected to be present along the amended project area.

5.5.1.3 Outfall Location

Within 1 km of the updated outfall location, there are three recorded occurrences of three species at risk:

- barn swallow (within 30 m);
- bobolink; and
- red-headed woodpecker.

Both barn swallow and bobolink have been reported to be of no concern due to low breeding evidence by the MBCDC (Murray, pers. comm. 2025). Red-headed woodpecker was last observed in 2023, though is not ranked as verified extant or historic by the MBCDC. Red-headed woodpecker inhabit open woodlands and forest edges featuring snags for nesting. The MBCDC Wildlife Branch is concerned that construction activities during the breeding season may disturb nesting birds and recommend mitigation measures be implemented to avoid disturbance (Murray, pers. comm. 2025). Preliminary mitigation for red-headed woodpecker has been included in Section 5.5.3.

5.5.1.4 Potable Water Line Route

Within 1 km of the PWL Route, there are two recorded occurrences of species at risk:

- Barn swallow
- Bobolink

Barn swallow and bobolink have been reported to be of no concern due to low breeding evidence by the MBCDC (Murray, pers. comm. 2025).

5.5.1.5 General

A field study of the amended project area was conducted in June 2025. This fieldwork program focused on the conveyance network and lagoons for the RM of La Broquerie and the communities of Otterburne and Providence College within the RM of De Salaberry, as well as the amended outfall location. The only portion of the amended project area that was not surveyed included Otterburne Road 34N, from Provincial Trunk Highway 59 east to 24 Rd E, due to a roadway closure. Detailed field notes were recorded throughout the Project and included observations of wildlife observations and wildlife habitat.

There were 42 species of wildlife incidentally observed during the surveys on June 4 and 5, including five species at risk (barn swallow, eastern wood-peewee, monarch, northern leopard frog and red-headed woodpecker) (Table 5-8).

Table 5-8. Wildlife Species Observations during June 4 and 5, 2025

Common Name	Scientific Name	S-Rank[a]	Provincial Status	SARA Status	COSEWIC Status
Birds					
American coot	*Fulica americana*	S5B	—	—	Not at Risk
American goldfinch	*Spinus tristis*	S5B	—	—	—
American robin	*Turdus migratorius*	S5B	—	—	—
American white pelican	*Pelecanus erythrorhynchos*	S4B	—	—	Not at Risk

Common Name	Scientific Name	S-Rank[a]	Provincial Status	SARA Status	COSEWIC Status
Bald eagle	*Haliaeetus leucocephalus*	S5B, S3N	—	—	Not at Risk
Baltimore oriole	*Icterus galbula*	S3S4B	—	—	—
Barn Swallow	*Hirundo rustica*	S4B	—	Threatened	Special Concern
Black-capped chickadee	*Poecile atricapillus*	S5	—	—	—
Black tern	*Chlidonias niger*	S4B	—	—	Not at Risk
Blue jay	*Cyanocitta cristata*	S5	—	—	—
Blue-winged teal	*Spatula discors*	S5B	—	—	—
Canada goose	*Branta canadensis*	S5B	—	—	—
Clay-colored sparrow	*Spizella pallida*	S5B	—	—	—
Common yellowthroat	*Geothlypis trichas*	S5B	—	—	—
Eastern kingbird	*Tyrannus tyrannus*	S4B	—	—	—
Eastern wood-peewee	*Contopus virens*	S3B	—	—	—
Gray catbird	*Dumetella carolinensis*	S5B	—	—	—
Indigo bunting	*Passerina cyanea*	S4B	—	—	—
Killdeer	*Charadrius vociferus Linnaeus*	S5B	—	—	—
Least flycatcher	*Empidonax minimus*	S5B	—	—	—
Mallard	*Anas platyrhynchos Linnaeus*	S5B	—	—	—
Marbled godwit	*Limosa fedoa*	S3S4B	—	—	—
Northern flicker	*Colaptes auratus*	S4B	—	—	—
Northern shoveler	*Spatula clypeata*	S5B	—	—	—
Pileated woodpecker	*Dryocopus pileatus*	S5	—	—	—
Purple martin	*Progne subis*	S4B	—	—	—
Red-headed Woodpecker	*Melanerpes erythrocephalus*	S3B	Threatened	Endangered	Endangered
Red-winged blackbird	*Agelaius phoeniceus*	S5B	—	—	—
Rose-breasted grosbeak	*Pheucticus ludovicianus*	S5B	—	—	—
Song sparrow	*Melospiza melodia*	S5B	—	—	—
Tree swallow	*Tachycineta bicolor*	S5B	—	—	—
Trumpeter swan	*Cygnus buccinator*	S2B	Endangered	—	Not at Risk

Common Name	Scientific Name	S-Rank[a]	Provincial Status	SARA Status	COSEWIC Status
Warbling vireo	*Vireo gilvus*	S5B	—	—	—
Wood duck	*Aix sponsa*	S5B	—	—	—
Yellow warbler	*Setophaga petechia*	S5B	—	—	—
Yellow-bellied sapsucker	*Sphyrapicus varius*	S5B	—	—	—
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	S4S5B	—	—	—
Mammals					
White-tailed deer	*Odocoileus virginianus*	S5	—	—	—
North American beaver	*Castor canadensis*	S5	—	—	—
Amphibians					
Canadian toad	*Anaxyrus hemiophrys*	S4	—	—	Not at Risk
Northern Leopard Frog	*Lithobates pipiens*	S4	—	Special Concern	Special Concern
Invertebrates					
Monarch	*Danaus plexippus plexippus*	S3S4B	—	Endangered	Endangered

[a] Provincial (S) ranks are assigned by the Manitoba Conservation Data Centre (Government of Manitoba n.d.c) and are based on the NatureServe global conservation status ranks (NatureServe n.d.). Ranks range from 1 (Critically Imperiled) to 5 (Secure).
[B] New species identified since previous EAP iteration.
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S3 – **Vulnerable,** At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 - **Apparently Secure,** At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S#S# - **Range Rank** —A numeric range rank (such as S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. Ranges cannot skip more than two ranks (such as SU is used rather than S1S4).
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— = not applicable
COSEWIC = Committee on the Status of Endangered Wildlife in Canada
SARA = *Species at Risk Act*

Several mammal indicators were observed, including tracks (potentially North American river otter and other undefined tracks) and scat (undefined). Additionally, multiple wildlife features were observed during the field survey, including a potential woodpecker cavity (along the conveyance starting at Otterburne Lagoon), purple martin nest box (along the conveyance starting at the Otterburne lagoons), tree swallow nest box (along the Otterburne lagoons), two beaver lodges (one along the conveyance starting at Otterburne lagoons and another at the outfall location) and one beaver dam (at the outfall location).

5.5.2 Potential Effects on Wildlife and Wildlife Habitat

5.5.3 Mitigation Measures

The assessment team has reviewed relevant regulatory guidance to establish the effectiveness of the proposed mitigation to reduce potential effects on Wildlife and Wildlife Habitat. It was determined that the mitigation measures and construction practices for wildlife that have been established are effective in avoiding or reducing environmental effects.

The only new mitigation measure introduced in this EAP involves pre-construction red-headed woodpecker surveys. For activities planned during the Nesting Period for Migratory Birds (Nesting Zone B4 – April 26 to August 14 (ECCC 2025c), surveys will be conducted to identify active nests within seven days of activities. In the event an active nest is found, protective setbacks will be established, and the nest will be subject to site-specific mitigation measures determined in consultation with a Wildlife Resource Specialist. All other mitigation measures to reduce potential effects on Wildlife and Wildlife Habitat remain the same as the Original EAP.

5.5.4 Residual Effects

No new potential effects were identified beyond those discussed in the Original EAP, Section 8.5.

5.6 Conclusions

For most of the elements identified that interact with the amended project area, the adverse residual environmental effects remain as identified in the Original EAP. With the application of the proposed mitigation measures for the Physical Environment, vegetation, surface water resources, groundwater, wildlife and wildlife habitat the adverse effects can be avoided or reduced as established in the Original EAP and this amendment.

6. References

Betcher, R.N., Grove, G., & Pupp, C. 1995. Groundwater in Manitoba: Hydrogeology, Quality Concerns, Management. National Hydrology Research Institute, Environment Canada.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2017. COSEWIC Assessment and status report on the Burrowing Owl *Athene cunicularia* in Canada, 2017. Committee on the Status of Endangered Wildlife in Canada. Ottawa. https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/burrowing-owl-athene-cunicularia-2017.html#_02_2.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2025. https://cosewic.ca/index.php/en/.

Convention on Wetlands Secretariat. 2025. The Ramsar List: All Sites In Canada. Gland, Switzerland. https://www.ramsar.org/country-profile/canada. Accessed May 2025.

Environment Canada. 2014. Recovery Strategy for the Small White Lady's-slipper (*Cypripedium candidum*) in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. v + 30 pp. Accessed May 2025. https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/recovery-strategies/small-white-lady-slipper-2014.html

Environment Canada. 2015. Management Plan for the Riddell's Goldenrod (*Solidago riddellii*) in Canada. Species at Risk Act Management Plan Series. Environment Canada, Ottawa. iv + 18 pp. Accessed May 2025. https://publications.gc.ca/collections/collection_2016/eccc/En3-5-56-2015-eng.pdf.

Environment Canada. 2022. Recovery Strategy for the Fascicled Ironweed (*Vernonia fasciculata*) in Canada. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. Vii+36 pp. Accessed May 2025. https://ecprccsarstacct.z9.web.core.windows.net/files/SARAFiles/legacy/plans/rs_fascicled_ironweed_e_final.pdf.

Environment and Climate Change Canada (ECCC). 2018. Nesting Periods. https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html. Accessed May 2025.

Environment and Climate Change Canada (ECCC). 2025a. Critical Habitat for Species at Risk National Dataset – Canada. Canadian Wildlife Service. Accessed May 2025. https://open.canada.ca/data/en/dataset/47caa405-be2b-4e9e-8f53-c478ade2ca74.

Environment and Climate Change Canada (ECCC). 2025b. Migratory Bird Sanctuaries. https://www.canada.ca/en/environment-climate-change/services/migratory-bird-sanctuaries/locations.html.

Environment and Climate Change Canada (ECCC). 2025c. General Nesting Periods of Migratory Birds in Canada. https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html#toc0.

Fisheries and Oceans Canada (DFO) 2013. Manitoba Restricted Activity Timing Windows for the Protection of Fish and Fish Habitat. https://www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/mb-eng.html.

Fisheries and Oceans Canada (DFO). 2023. Interim Standard: in-water site isolation. Accessed June 2025. https://www.dfo-mpo.gc.ca/pnw-ppe/codes/interim-provisoire/site-isolation-confinement-aire-travail-eng.html.

Fisheries and Oceans Canada (DFO). 2025. Measures to protect fish and fish habitat. Accessed June 2025. https://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures-eng.html.

Flora of North America Editorial Committee (Flora of North America). 1993+. Flora of North America North of Mexico [Online]. 25+ vols. New York and Oxford. http://beta.floranorthamerica.org. Accessed June 2025.

Friesen, C. n.d. Manitoba's Agalinis Species - Rare plants to watch out for this summer. Nature Manitoba. Accessed June 2025. https://naturemanitoba.ca/news-articles/manitoba%E2%80%99s-agalinis-species.

GIN. 2021. Groundwater Information Network https://gin.gw-info.net/service/api_ngwds:gin2/en/gin.html Accessed August 2023.

Government of Canada. 2025. Species at risk public registry. Species search. https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10. Accessed June 2025.

Government of Manitoba. 2023. Manitoba Natural Resources and Northern Development 2002. Annual Report (2021-2022). March 2023.

Government of Manitoba. n.d.a. History of Flooding in Manitoba. Accessed August 2023. https://www.gov.mb.ca/flooding/history/index.html.

Government of Manitoba. n.d.a "AgriMaps." Manitoba Agriculture. Accessed May 2025. https://experience.arcgis.com/experience/90713dfec03b47d6a754628191cbeb4a/page/Page.

Government of Manitoba. n.d.b. Clubroot Distribution in Manitoba. Accessed May 28, 2025 https://www.manitoba.ca/agriculture/crops/plant-diseases/clubroot-distribution-in-manitoba.html.

Government of Manitoba. n.d.c. Conservation Data Centre-Lists of Animal Species. Accessed May 2024. https://www.gov.mb.ca/nrnd/fish-wildlife/cdc/index.html.

Government of Manitoba. n.d.d. Contaminated Sites Registry Map. Accessed August 2023. https://manitoba.maps.arcgis.com/apps/webappviewer/index.html?id=fdb34ac36084481cb2eb0d46489337a7.

Government of Manitoba. n.d.e "Detailed Soils (new - 2021) by Municipality." Manitoba Land Initiative. Accessed May 29, 2025. https://mli.gov.mb.ca/soils/index_soilsdetailed.html.

Government of Manitoba. n.d.g. Environmental Emergency Response Program. Accessed June 2025. https://gov.mb.ca/sd/waste_management/solid_waste_management/emergency-response/index.html.

Government of Manitoba. n.d.h. Land Use and Development Map. Accessed January 2025.

Government of Manitoba. 2011a. Water Quality Standards, Objectives, and Guidelines https://www.gov.mb.ca/sd/pubs/water/lakes-beaches-rivers/mb_water_quality_standard_final.pdf

Government of Manitoba. 2011b. Rat-Marsh River Integrated Watershed Management Plan. Manitoba Water Stewardship. Government of Manitoba 2017

Grasby, S.E. and R.N. Betcher. 2002. Regional Hydrogeochemistry of the Carbonate Rock Aquifer, Southern Manitoba. Can. J. Earth Sci. 39:1053-1063

Habib, L., E.M. Bayne and S. Boutin. 2007. "Chronic Industrial Noise Affects Pairing Success and Age Structure of Ovenbirds Seiurus aurcapilla." Journal of Applied Ecology. Vol. 44. pp. 176-184.

Hutlet, C. 2023. Public Water System Annual Report 2022. Lorette Public Water System. The Rual Municipality of Taché

Katopodis, C. 1992. Fish Screening Guide for Water Intakes. Freshwater Institute. Department of Fisheries and Oceans. Winnipeg, Manitoba. 4pp. February.

Macdonald-Ritchot Planning District (PD). 2023. By-Law No. 2/22: Macdonald-Ritchot Development Plan. Accessed June 2025. https://www.ritchot.com/Home/DownloadDocument?docId=846ac855-0698-4554-8cdf-85e66731b528.

Manitoba Conservation Data Centre (MBCDC). 2024. Plant List. Wildlife Branch. January 2024. Accessed May 2025. https://www.manitoba.ca/nrnd/fish-wildlife/cdc/pubs/plant_list_mbcdc_2024jan.pdf.

Manitoba Habitat Heritage Corporation and Manitoba Conservation and Water Stewardship. 2015. *Wetlands*. ESRI Geodatabase.

Matile, G.D.D. and G.R. Keller. 2007. Surficial geology of Manitoba. Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, Surficial Geology Compilation Map Series. Accessed June 2025. https://www.manitoba.ca/iem/geo/gis/sgcms/pdfs/sg-mb_front.zip.

Murray, Colin, Information Manager, Manitoba Conservation Data Centre, Wildlife Branch, Natural Resources and Indigenous Futures. 2025. Personal communications (emails and telephone calls) with Kate McMorran and Mari Decker, Jacobs. May 28 to June 18.

National Wetlands Working Group (NWWG). 1997. *The Canadian Wetland Classification System*. Second Edition. B. G. Warner and C. D. A. Rubec (Eds.). Waterloo, Ontario: University of Waterloo, Wetlands Research Centre. vi + 68 pp.

Natural Resources Canada (NRCan). 2007-2011. *National Hydro Network* (digital files). Sherbrooke, Quebec. Available: http://www.geobase.ca/geobase/en/data/nhn/index.html. Acquired: April 2012. Last Update Check: May 2012.

NatureServe. n.d. "Definitions of NatureServe Conservation Status Ranks." Accessed May 2024. https://help.natureserve.org/biotics/content/record_management/Element_Files/Element_Tracking/ETRACK_Definitions_of_Heritage_Conservation_Status_Ranks.htm#National.

Province of Manitoba. n.d.a. Declaration of Noxious Weeds in Manitoba. Accessed May 2025. https://www.gov.mb.ca/agriculture/crops/weeds/declaration-of-noxious-weeds-in-mb.html.

Rural Municipality of De Salaberry. n.d. Red River Weed Control District. 2021 Proposed Pesticide Program. Accessed May 2025. https://www.rmdesalaberry.mb.ca/Home/DownloadDocument?docId=ae845392-f2b9-4617-9a9a-e6dd661e2ecf.

Rural Municipality of La Broquerie. 2020. By-Law No. 6-2018: RM of La Broquerie Development Plan. Accessed June 2025. https://labroquerie2020.municipalwebsites.ca/ckfinder/connector?command=Proxy&lang=en&type=Files&currentFolder=%2F&hash=c245c263ce0eced480effe66bbede6b4d46c15ae&fileName=By-Law%2006-2018%20(Passed%20in%202020).pdf.

Rutulis, M. 1986. Bedrock Aquifers. Aquifer Map of Southern Manitoba. Department of Natural Resources, Water Resources Branch. Map M-482.

Stewart, R. E. and H. A. Kantrud. 1971. *Classification of Natural Ponds and Lakes in the Glaciated Prairie Region*. Resource Publication No. 92. Washington, DC: U.S. Fish and Wildlife Service. 57 pp.

Stewart, K. and D. Watkinson. 2004. The Freshwater Fishes of Manitoba. University of Manitoba Press. Winnipeg, MB. 300 pp.

Treasury Board of Canada Secretariat. n.d. Federal Contaminated Sites Inventory. Map Navigator. Accessed May 2025. https://map-carte.tbs-sct.gc.ca/map-carte/fcsi-rscf/map-carte.aspx?Language=EN&backto=www.tbs-sct.gc.ca/fcsi-rscf/kw-mc-eng.aspx#search.

TREK Geotechnical. 2024. RSR Wastewater Cooperative – Wastewater Treatment Facility (WWTF) Geotechnical Investigation Report.

Western Hemisphere Shorebird Reserves Network (WHSRN). 2025. Western Hemisphere Shorebird Reserve Network Sites. https://whsrn.org/whsrn-sites/.

Appendix A
Site Photographs – Vegetation

Photograph A-1. View west on the south side of the Rat River at proposed conveyance crossing (June 5, 2025).

Photograph A-2. View north of riparian vegetation and dry riverbed from the north side of Johnson Drain on Road 41 N (June 5, 2025).

Photograph A-3. View east of drainage ditch from the south side of Road 34 N ~50 m east of Gobeil Road (June 5, 2025).

Appendix B
Plant Species and Ecological Communities of Concern Discovery Contingency Plan

Plant Species and Ecological Communities of Concern Discovery Contingency Plan

In the event that previously unidentified rare plants or ecological communities are discovered, the plant or ecological community will be assessed and appropriate mitigation measures will be determined. The appropriate site-specific mitigation measures will be determined following an assessment by a vegetation specialist, which will consider the following:

- the location of the plant or ecological community on the construction project area;
- the relative rarity of the plant or ecological community (regionally, nationally, etc.);
- the local abundance of the plant or ecological community;
- the growth habit and propagation strategy of the plant or ecological community; and
- the habitat preferences of the plant or ecological community.

The suite of mitigations that may be implemented includes the following:

- narrow down the proposed area of disturbance and protect the site using snow fencing and signage;
- inform all users of access restrictions in the vicinity of fenced sites;
- temporarily cover the site with snow (given the season), geotextile pads, flex net, swamp mats, or equivalent;
- extend road or watercourse bores to avoid or minimize effects on the site;
- realign the route to avoid the site; or
- propagate rare plants or specific portions of sensitive ecological communities, via vegetative or reproductive means (such as harvesting of seed from the construction project area or adjacent area, salvaging and transplanting portions of sod and surrounding vegetation or collecting of cuttings).

Any new mitigation will be communicated to appropriate Project personnel including the Contractor.

Appendix C
Site Photographs – Fisheries

Photograph C-1. Looking upstream 25 m from the upstream end of the drainage near the proposed outfall location. Channel was vegetated with shallow standing water at time of assessment (June 4, 2025).

Photograph C-2. Looking downstream 25 m from the upstream end of the drainage near the proposed outfall location. Channel was vegetated with shallow standing water at time of assessment (June 4, 2025).

Photograph C-3. Looking downstream at the drainage near the proposed outfall location, 90 m upstream from its confluence with the Red River. Channel was vegetated with shallow standing water at time of assessment. Banks are primarily composed of rip rap boulders (June 4, 2025).

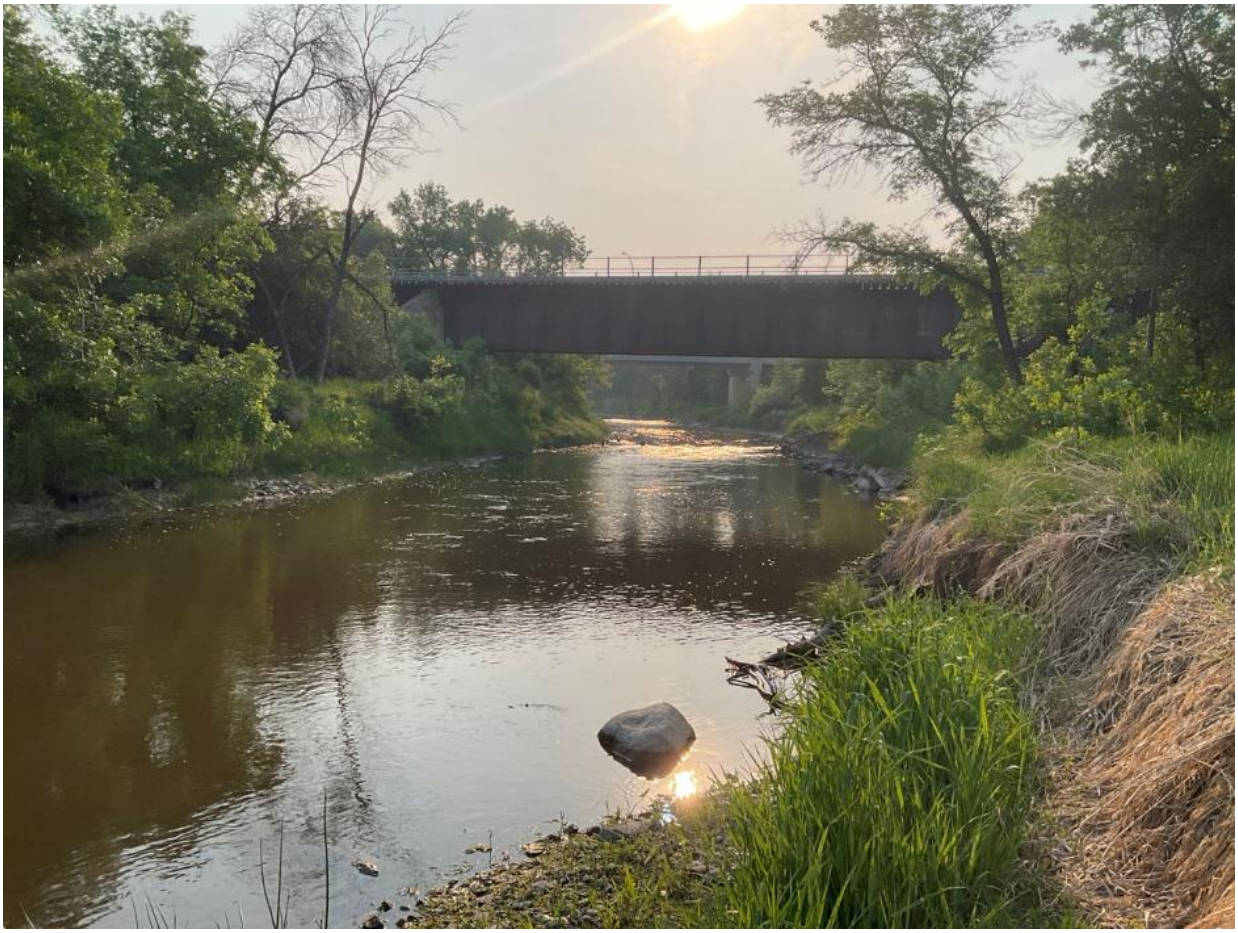
Photograph C-4. Looking downstream at the drainage near the proposed outfall location, 65 m upstream from its confluence with the Red River. The banks and channel were vegetated with shallow standing water at the time of assessment (June 4, 2025).

Photograph C-5. Looking at the right bank of the Red River at the mouth of the proposed outfall drainage location. The banks were vegetated with willows at the time of assessment (June 4, 2025).

Photograph C-6. Looking upstream at the Red River at the mouth of the proposed outfall drainage location (June 4, 2025).

Photograph C-7. Looking downstream at the Red River at the mouth of the proposed outfall drainage location (June 4, 2025).

Photograph C-8. A Mapleleaf mussel shell found on the right bank of the Red River, 25 m downstream from the mouth of the proposed outfall drainage location (June 4, 2025).



Photograph C-9. Looking upstream from the crossing at Rat River (WC-23) (June 4, 2025).

Photograph C-10. Looking downstream from the crossing at the Rat River (WC-23) (June 4, 2025).

Photograph C-11. Looking at the beaver lodge on the right bank observed on Rat River (WC-23), 35 m downstream from the crossing (June 4, 2025).

Photograph C-12. Looking SE at the east end of WC-24. Most of the roadside channel was vegetated with cattails and contained shallow standing water at the time of assessment (June 4, 2025).

Photograph C-13. Looking at the West end of WC-24. Most of the roadside channel was vegetated with cattails as pictured and contained shallow standing water at the time of assessment (June 4, 2025).

Photograph C-14. Looking downstream at WC-26 on the south side of the road. The culvert was partially blocked with debris, shallow standing water and no flow observed at the time of assessment (June 4, 2025).

Photograph C-15. Looking upstream at WC-26 on the south side of the road. Shallow standing water and no flow was observed at the time of assessment (June 5, 2025).

Photograph C-16. Looking northeast at WC-27 on the south side of the road. The channel was vegetated with cattails and contained deep standing water at the time of assessment. No flow observed (June 5, 2025).

Photograph C-17. Looking southeast at WC-27 on the south side of the road. The channel was vegetated with cattails and contained deep standing water at the time of assessment. No flow observed (June 5, 2025).

Photograph C-18. Looking northeast at WC-28 on the south side of the road. The channel was vegetated with cattails and dry at the time of assessment (June 5, 2025).

Photograph C-19. Looking southwest at WC-28 on the south side of the road. The channel was vegetated with cattails and dry at the time of assessment (June 5, 2025).

Photograph C-20. Looking west at the east end of WC-29. The channel was vegetated with cattails with shallow standing water and no observed flow at the time of assessment June 5, 2025).

Photograph C-21. Looking downstream at the crossing at St. Adolphe Coulee (WC-31) June 5, 2025).

Photograph C-22. Looking upstream at the crossing at St. Adolphe Coulee (WC-31). WC-31 is associated with wetland habitat upstream of the crossing June 5, 2025).

Photograph C-23. Looking at the observed beaver dam approximately 110 m upstream of the crossing at St. Adolphe Coulee (WC-31) (June 4, 2025).