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Project name:
CWRA Student Design Competition

To:
Canadian Water Resources Association
Students and Young Professionals

From:
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Date:
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Announcement: Student Design Competition

Subject: CWRA SDC - St. Adolphe Ring Dike Assessment

The Canadian Water Resources Association (CWRA) and AECOM are excited to announce the 2026 Student Design Competition! We are opening up registration for undergraduate engineering students to incorporate this student design competition (SDC) into either their capstone projects, or one of their hydraulic design classes. The project spans from September 2025 to March 2026, so it is likely best suited to a capstone project or a course that spans two terms.

The project for the 2026 Student Design Competition will be the St. Adolphe Ring Dike Assessment. This represents a real-world project that was previously implemented by AECOM and the Province of Manitoba, so students can see the impacts of their assessment and how it will contribute to St. Adolphe's development goals in the future.

St. Adolphe is a community in Manitoba, south of Winnipeg, and is primarily an agricultural community with a population of approximately 1000. The community has a ring dike surrounding its perimeter, which protects community infrastructure in the event of flooding. The Red River has had multiple notable flooding events in 1997, 2009 and 2011, which have informed dike standards for the Province of Manitoba. St. Adolphe is expanding the ring dike to allow for community expansion, and the community has a preferred dike alignment selected, as indicated in Figure 1.

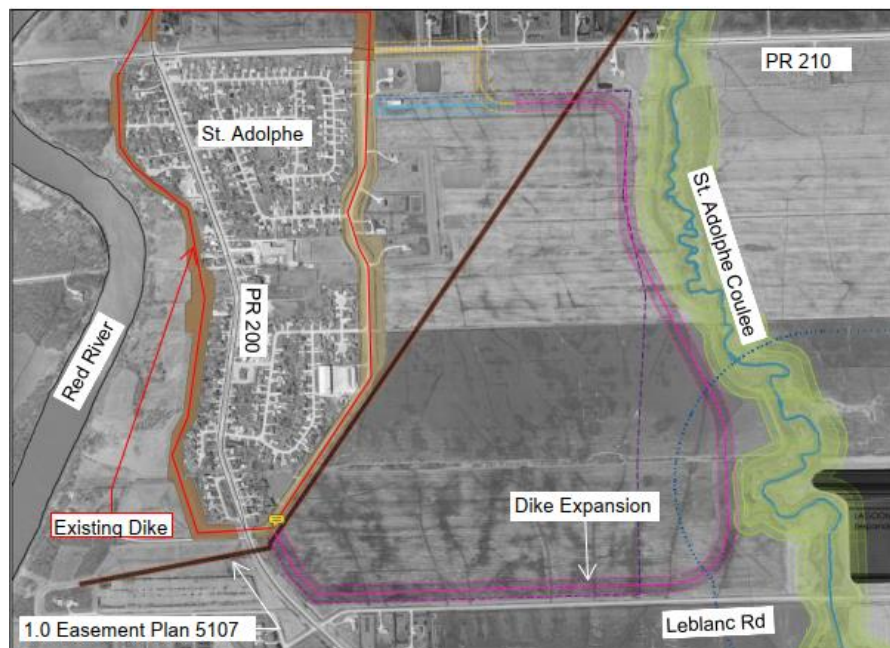


Figure 1: St. Adolphe - Ring Dike Extents

To assess the impacts of the ring dike expansion, students will need to complete the following tasks:

- 1) Assess the current flooding conditions in the study area.
- 2) Assess the existing dike performance.
- 3) Based on the assessment, identify key vulnerabilities and opportunities for improvement.
- 4) Determine appropriate dimensions for the proposed expansion, and establish a connection (e.g. tie-in) methodology with the existing dike structure.
- 5) Analyze changes in flooding patterns following the proposed expansion, including impacts on surrounding properties and infrastructure.
- 6) Provide recommendations to the community for implementing the ring dike expansion, considering safety, cost, environmental impact and long-term resiliency.
- 7) OPTIONAL: If required, propose an alternate ring dike alignment and dimensions based on the assessments above.

This exercise will be conducted using HEC-RAS 2D modelling software. Students will analyze flood levels both before and after the proposed ring dike expansion to evaluate the impact to the surrounding properties. To complete this assignment, students will be provided with the following information:

- Upstream hydrograph for the 1:200-year event
- Downstream water levels for the 1:200-year event (timeseries)
- Digital Elevation Model (DEM) of St. Adolphe and the surrounding area
- Bathymetric information for the Red River
- Current and proposed dike alignments
- Record information for the existing dike

The project will take place through the 2025/2026 school year, with presentations taking place in the spring. The final deliverable will be a PowerPoint presentation showing the process and outcomes of the project. The project timelines are presented below in Table 1.

Table 1: Student Design Competition Timelines

#	Milestone	Date of Completion
1	Issuance of SDC Package	September 18, 2025
2	Registration Deadline	December 15, 2025
3	Project Overview & HEC-RAS tutorial	Mid-January, 2026
4	Hard Copy of Presentation	April 17, 2026
5	Virtual Presentation	May 1, 2026
6	Winning Team Announced	May 4, 2026
7	Presentation at CWRA Conference	June 16 – 19, 2026

The winning team of the student design competition will be invited to present at the 2026 CWRA Conference in Winnipeg, Manitoba, and be awarded a prize of \$2,500 to be shared amongst team members. We look forward to any questions that the universities may have about the SDC. We will be sharing out the full student package by mid-September.