MEMORANDUM

To:	Red Rock community members and stakeholders
From:	Warrior Engineering Ltd., on behalf of the Township of Red Rock
Date:	October 2026
Project:	W26-059: Red Rock Waterfront Swimming Area Feasibility Study
Document:	W26-059-MEM-001
Re:	Engineering and environmental constraints at the five candidate swimming sites

Purpose

The Township of Red Rock is studying where a designated public swimming area could be located on the waterfront. Thank you to everyone who completed the first survey and came to the open house on September 23, 2026. Your answers pointed to a clear pattern: people want safe, easy access to the water, a good lake bottom (sandy rather than rocky or weedy), and clean water. What puts people off most is rocky or awkward entry, weeds, and not knowing where it is safe to swim.

During September and October 2026, Warrior Engineering surveyed and inspected each of the five candidate sites, reviewed past waterfront, marina and Nipigon Bay Remedial Action Plan records, and spoke with people who know the bay well. This memo summarizes the main **engineering and environmental constraints** at each site, meaning the physical and regulatory conditions that affect what could be built, how it would be built and how it would be maintained, so that you can weigh the sites before completing Survey #2. **No site has been selected, and nothing in this memo is a decision about any site.**

Conditions That Apply to All Sites

- **Shallow, cold water and a soft bottom.** Nipigon Bay is shallow along the waterfront and the swimming season is short. Past boreholes in the marina area found sand close to shore, with soft silt and clay farther out, organic material and, in places, bark from historic log drives. Water depths have not been measured at any site and would be needed before detailed design. Deeper water is easier to swim from because swimmers do not stir up the bottom, but it leaves less room for small children. Shallow water suits young children, but is more easily stirred up, which affects water clarity and bacteria.
- **Changing lake levels.** Lake Superior can vary by about 1.5 m between historic low and flood levels, so any dock, stairs or platform must work at both high and low water.
- **Wind, waves and ice.** The pier and breakwater sites are exposed to wind (#3 from the north, #5 from the south, where winds are stronger and last longer because they cross more open water), which will drive the design and may limit safe swimming on windy days. The bay freezes each winter, so docks and platforms would likely need to be removed every fall or built to withstand ice.
- **Zebra mussels.** They were recorded at #3, #4 and #5 during site visits, and a 2025 aquatic habitat survey near the former mill found many empty shells but no live mussels. We have not yet confirmed whether live mussels are present at any candidate site, and they may be at other sites. Where they do take hold they are hard to remove. They grow on hard surfaces and build on top of one another, so anything that adds hard surface also adds mussel habitat. Their shells can cut feet, so water shoes are advised.
- **Sand beaches are hard to create and keep.** Imported sand tends to be buried by creek sediment or moved by waves and needs topping up. The source of any imported material also matters, because new material can release calcium into the water that favours zebra mussels.
- **Swimmer's itch and algae.** Swimmer's itch is caused by a parasite that passes between birds and snails, and is more likely in warm, shallow, sheltered water where birds gather. Warm, still water can also raise the chance of blue-green algae.
- **Safety and emergency access.** Any swimming area here would not be guarded unless the Township decides otherwise. Emergency vehicles cannot cross the small bridge to the islands, so response times are longer at sites near them. Emergency access and response time are part of how we compare the sites.
- **Accessible entry and amenities.** Entry that works for people with mobility needs, along with washrooms or a change room, would need to be planned at any site. Ramps or step-downs at the pier end could serve more people than stairs off the breakwater, and there may be room for a small change room or portable washroom at the pier. Walking distance from parking varies by site.
- **Water movement is not well understood.** Nothing is available at the scale we need to judge how water flushes through each site or where swimmers could drift. We are requesting a 2013 water-flow (hydrodynamic) model of the marina area and looking at what a study of water movement around the breakwall would involve.
- **Work in or near the water is reviewed by others.** Federal fisheries rules apply to any change that could affect fish habitat; a structure at or below the lake's high-water level needs a provincial work permit; the local health unit reviews water quality for any designated swimming area; and a structure near the marina may need a Transport Canada navigation review. Nipigon Bay was removed from the list of Great Lakes Areas of Concern in August 2026, but habitat built during the clean-up remains protected. Engagement with the Red Rock Indian Band and the Métis Nation of Ontario is planned.
- **Two types of swimming area are possible:** a sand beach (#1, #2 and #4), which would need major shoreline work, or a dock, platform or concrete pad built off the existing rock pier or breakwater (#3 and #5).

Limitations

This memo is based on site inspections, a desktop review of existing records, the September 23, 2026 open house, and discussions with people who know Nipigon Bay well. No field studies have been completed for this phase, so several points remain open questions. Site lengths

and areas are from RFP Addendum 1 and may change, particularly for #3. Stakeholder comments reflect professional experience, not formal agency positions; engagement with the responsible agencies is still required for any preferred site.

Site-by-Site Summary

Site	What Is There Today	Main Constraints	Biggest Unknown
#1 – The Old Swimming Area Northwest end of the park, by the boardwalk *98 m shoreline, about 4,372 m²*	Former 1990s swimming area, now dense cattail and bulrush marsh with a mucky bottom. Water at the shore is murky and shallow. The bank rises about 1.5 m to the boardwalk. Big Trout Creek enters nearby. Since the 1990s less use have let the shoreline grow back toward a natural state.	A beach would require vegetation removal, dredging and imported sand, and would undo some of that natural recovery. Creek sediment is building up at the shore and would bury imported sand. Deeper holes left from breakwall construction are present around this site and #2 and would need to be checked for safety. Ongoing maintenance to keep the area open. One stakeholder suggested a planted buffer out from the creek to trap sediment and help mark the swimming area; that planting would itself be in-water work.	What has grown in or settled here since the 1990s, and whether zebra mussels are present. This site has the least background information of the five.
#2 – Sheltered Bay Bay beside the interpretive centre *120 m shoreline, about 3,495 m²*	Calm wetland bay with the densest vegetation and murkiest water of the five sites. A new floating dock extends out into the marshy area; the water at the dock is very shallow (under about 0.5 m). Closest to the community centre, splash pad and parking. Identified as the preferred site in the 2022 Strategic Plan and reaffirmed through the initial community survey.	The plants would need to be removed before people could swim here, and a constant battle against infilling and regrowth is expected. Sheltered, vegetated bays are usually valuable fish and amphibian habitat, and a proposal to remove wetland would be difficult to get approved. Creek silt continues to build up and would bury imported sand. Very shallow, poorly flushed water carries a higher risk of swimmer's itch, bacteria and blue-green algae, and fine sediment is easily stirred up. Low ground could potentially flood at high water.	The habitat value of the plants in this bay has not been assessed, and zebra mussel presence has not been confirmed.
#3 – Dock Access Along the marina pier; location being reconsidered farther toward the pier end *95 m shoreline available, about 6,024 m² (may change with the new location)*	Steep rock bank 1.0–1.5 m above the water, with no shoreline vegetation, beside the marina boat entrance. Gravel road along the pier. Quick access to deeper water; vehicles and emergency services can reach the pier. The largest of the five sites. Pier and seawall swimming is popular in other cities, and some stakeholders see a beach as not essential. Already used by the community for swimming and recreational activities, including water football.	Engineered stairs, step-downs or a ramp are needed, and a new in-water structure raises its own questions of footings, anchoring and shading of the lake bottom. Swimmers must be kept clear of boats entering and leaving the marina, using signage and buoys. A removable dock would have to come out each season because of ice and rough water against the wall; a fixed platform or concrete pad would be lower maintenance. Deep water leaves little shallow area for young children. Exposed to north winds, waves and ice. Zebra mussels recorded.	The final location along the pier and the dock design, which will determine the approvals needed. The lake bottom at the access point has not been measured; a 2025 survey nearby found silty sand, fine sediment and organic material, with woody debris.
#4 – Bark Bay Southeast corner, near the campground *120 m shoreline (depends on bark removal), about 4,192 m²*	Sheltered bay beside the campground, out of the way of marina traffic. The shore and lake bottom are covered in bark and wood chips from the log-drive and mill era, along with shells, over what appears to be sand. Cattails and bulrushes onshore with a small creek or spring draining from higher ground. Sunken logs offshore. Sheltered from wind and waves.	A beach would require removing the bark and shell layer, which could stir up older contaminants; underwater bark piles were deliberately left in place during the clean-up in the 2000s for that reason. Monitoring since then has shown improvement, but we are not aware of any sampling onshore at this site. Bark and shells will likely keep building up, requiring ongoing maintenance at a long-term cost to the community. Poor water circulation: without knowing how water moves through the bay, bark removal could make water quality worse. Sunken logs are a hazard. Low ground could potentially flood at high water. Zebra mussels recorded. Natural protection from prevailing winds and wave action.	What the bark is made of and what it covers, whether the sediment beneath is affected, who would be responsible for sampling and clearing, and whether the 2014 lagoon water diversion changed how water moves through this corner.
#5 – Off the Breakwater Outside the east breakwall, past the small bridge *40 m along the breakwall plus 40 m on the east side of the island, about 1,759 m²*	Steep rock breakwater about 2 m above the water, with a sand bottom, beside two fish habitat islands built between 1993 and 1995 during the Nipigon Bay clean-up. This is where most people swim today, although the rock-wall entry is awkward and has been described as precarious.	Engineered stairs or a ramp are needed. No emergency vehicle access (narrow bridge). Exposed to south winds, waves and ice, and stakeholders raised concern about currents carrying swimmers on floats too far out. Work near the habitat islands needs extra steps, including a habitat assessment, approvals and protection during construction; lake trout spawning was documented along the inside of the breakwall, so hauling in sand should be avoided. Longest walk from parking (about 400 m). Zebra mussels recorded.	Water circulation and flushing patterns have not been assessed at this scale, and the potential presence of species at risk remains unconfirmed. Further investigation is also required to determine whether the sheltered waters between the islands and breakwater are suitable for swimming.

What Happens Next

- Your Survey #2 responses, together with these constraints and other information gathered as the project moves forward, will help rank the sites and identify up to two preferred sites for Council's consideration. A map of the candidate sites, showing the revised location for #3, is included with the survey and with this memo.
- Paper copies of the survey and this memo are available at the Municipal Office and the Red Rock Public Library.
- Warrior is following up with Fisheries and Oceans Canada, the Ministry of Natural Resources, the Ministry of the Environment, Conservation and Parks, Parks Canada, the Invasive Species Centre and others, and requesting monitoring records for the bay.
- Warrior will present the findings to Council this fall, currently targeted for December 2026. Council decides whether to proceed and which site to carry forward.
- If Council approves, field investigations, including an Environmental Impact Study, would begin in early 2027, followed by preliminary design later in 2027.
- Questions about this memo can be directed to:

Ashley Davis, Community Development Officer, Township of Red Rock
T: (807) 886-2235
E: cdo@redrocktownship.com

Alexa Cattani, P.Eng, Project Manager, Warrior Engineering Ltd.
T: 807 372 0992
E: alexa@warriorengineering.ca

Have Your Say!
Scan the QR code to complete our second community survey and help shape Red Rock's future swimming area.