An Environmental Assessment of the Proposed Pioneer Park Development.

October 20, 2024

A report prepared for the Municipality of Sioux Narrows – Nestor Falls

By

B.W. Corbett B.Sc., M.Sc.

Executive Summary

The environmental assessment examined possible impacts the proposed Pioneer Park development might have on water quality and fish and wildlife habitats in Pioneer Park and Reedy Bay. A number of specific concerns were identified including: negative impacts on water quality for fish and wildlife, wild rice and drinking water in Reedy Bay; loss of fish and wildlife habitat and wild rice in Reedy Bay; and abandonment of Bald Eagle nesting, perching and foraging in Pioneer Park and Reedy Bay. Where possible, mitigation measures are recommended.

Reedy Bay is an important wetland (marsh) providing habitat for a diversity of fish and wildlife species; wild rice harvesting opportunities for Indigenous peoples; and drinking water for local residents. Recommended mitigation measures to maintain water quality at predevelopment levels and protect fish and wildlife habitats and wild rice include:

- Sediment control plan during and after construction.
- Approved and inspected septic systems.
- No direct discharge of untreated surface or stormwater into Reedy and Regina Bays.
- Maintain a minimum 20 m. vegetation buffer between the development and adjacent water bodies.
- No developments (docks, boathouses, boat launch etc.) or alterations (dredging, aquatic vegetation removal) in Reedy Bay.
- Proposed docking facility should be located in Regina Bay
- Implement a pre and post development water quality monitoring program.

Pioneer Park has a relatively intact forest cover with mature white pine and distinct stands of bur oak/iron wood, black ash, and northern white cedar. The forest provides habitat to a variety of birds and small mammals. A Bald Eagle nest is the most important wildlife feature in Pioneer Park. Protecting some of the natural forest will preserve habitats that birds and small mammals depend on. It is recommended:

- Preserve all mature white pines (living and dead).

- Protect existing bur oak/iron wood, black ash and northern white cedar stands incorporating them into future landscaping plans.
- Maintain a 20 m. minimum vegetation buffer between the development and Reedy and Regina Bays.

Protecting migratory bird nests during the breeding season is mandatory under the Migratory Birds Regulation (2020) and Fish and Wildlife Conservation Act (1997). This can be accomplished by either:

- No site alterations or construction should occur during the general nesting period from mid-April to the end of August.

OR

- If nests are encountered during site clearing or construction, the nest tree must be protected with appropriate setbacks and timing restrictions (OMNR 2010 b).

Alternate nests, perching trees and forage habitat within 400 to 800 m. of the primary Bald Eagle nest is considered Significant Wildlife Habitat. The Provincial Planning Statement (2024) says:

"Development and site alterations shall not be permitted in significant wildlife habitat unless it has been demonstrated there will be no negative impacts on the natural features or ecological functions."

It is most likely the Bald Eagles will abandon the Pioneer Park nest if the development proceeds as planned. However, it is possible they may nest somewhere else and continue to use Reedy Bay for foraging. If the development proceeds, the nest tree must be protected (required under the Fish and Wildlife Conservation Act 1997) and a 20 m. vegetation buffer should be maintained around the nest tree. To encourage continued perching and foraging in Pioneer Park and Reedy Bay:

- Mature white pines adjacent to Regina Bay (alive or dead) should be preserved and protected with a 20 m. vegetation buffer.
- Maintain a 20 m. minimum vegetation buffer between the development and Reedy and Regina Bays.

- Protect existing bur oak/iron wood, black ash and northern white cedar stands.

Bald Eagles did not use the Pioneer Park nest this breeding season (2024). It is unknown whether the Bald Eagles have permanently abandoned the Pioneer Park nest or are using an alternate nest and may return to the Pioneer Park nest in the future. A two-year (2025, 2026) monitoring program during the breeding season is required to determine whether the Pioneer Park nest is active or inactive and if eagles have established an alternate active nest within the 400 to 800 m. nest area (Significant Wildlife Habitat).

Possible scenarios:

1.0 Bald Eagles return and use the Pioneer Park nest in the next two breeding seasons (2025, 2026). No development or site alterations should occur within the 100 m. primary zone surrounding the nest tree to be consistent with the Provincial Planning Statement (2024).

2.0 Bald Eagles use an alternate nest within the 400 to 800 m. nest area. The alternate nest is now the new primary nest while the Pioneer Park nest is considered an alternate nest but the area is still classified as Significant Wildlife Habitat. Other than protecting the alternate nest and considering it part of the Significant Wildlife Habitat, OMNR provides no specific guidance regarding alternate nests.

Again, it is highly unlikely Bald Eagles would return to the alternate nest (Pioneer Park) if the development proceeds as proposed. The following mitigation measures may support continued perching and foraging in Pioneer Park and Reedy Bay:

- Maintain a 20 m. vegetation buffer around the alternate nest tree.
- Mature white pines adjacent to Regina Bay (alive or dead) should be preserved and protected with a 20 m. vegetation buffer.
- Maintain a 20 m. minimum vegetation buffer between the development and Reedy and Regina Bays.
- Protect existing bur oak/iron wood, black ash and northern white cedar stands

3.0 Bald Eagles do not use the Pioneer Park nest or an alternate nest within the 400 to 800 m. nest area for breeding in the next two years (2025, 2026). The area would no longer be considered Significant Wildlife Habitat and development could proceed as proposed with no timing restrictions.

A precautionary approach is recommended:

- No site alteration or development should occur within the 100 m. primary zone surrounding the Pioneer Park nest tree until the status of the nest is determined – active or inactive.
- The Bald Eagles should be given time to adjust to the significant clearing and disturbances that occurred adjacent to the nest tree and within the 100 m. primary zone this summer. These areas should be allowed to revegetate naturally. No development (e.g., Phase 1) or site alterations should occur outside the primary zone this fall (2024) or winter (2025).
- The above recommendation could be reconsidered if Bald Eagles do not nest in Pioneer Park in 2025. If so, construction should be restricted to the non-critical period September 1, 2025 to February 28, 2026. No access roads should be built within the 100 m. primary zone until the nest is classified as inactive (e.g., after the 2026 breeding season).

Table of Contents

Page

List of Figures

Page

1.0 Introduction

The Township of Sioux Narrows – Nestor Falls is considering the development of Pioneer Park for residential and commercial development. This will include multiple residences (attached units, duplexes, triplexes, quadplexes) and an area designated for commercial development. The proposed project will also include access roads, parking lots, septic systems and a boat docking facility.

As part of its due diligence, the Township requested an environmental assessment be undertaken by a qualified Biologist (Barry Corbett) to determine the environmental impacts the proposed development may have on water quality, fish and wildlife habitats on the property and adjacent Reedy Bay. Within the general context of these objectives, several specific concerns were identified including: negative impacts on water quality for fish and wildlife, wild rice and drinking water in Reedy Bay; loss of fish and wildlife habitats in Reedy Bay; and loss of Bald Eagle nesting, perching, and foraging in Pioneer Park and Reedy Bay. These specific concerns are addressed and where possible mitigation measures are discussed.

This environmental assessment is guided by and conforms to the direction of the Provincial Planning Statement (revised October, 2024)

4.1.5 Development and site alterations shall not be permitted in:

d) significant wildlife habitat unless it has been demonstrated there will be no negative impacts on the natural features or their ecological functions.

4.1.6 Development and site alterations shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

and the policies contained in the Official Plan for the Township of Sioux Narrows - Nestor Falls (2014).

Recommendations and mitigation measures were developed specifically for the proposed Pioneer Park development and were derived from the appropriate OMNR guidelines: Bald Eagle Habitat Management Guidelines (OMNR 1987), Natural Heritage Reference Manual (OMNR 2010 a), Forest Management Guide for Conserving Biodiversity at the Site and Stand Scales (OMNR 2010 b) and

Significant Wildlife Habitat Mitigation Support Tool (OMNR 2014). These recommendations and mitigation measures are options for Council's consideration to assist with their deliberations and decision making.

2.0 Location and Legal Description

Pioneer Park is located between Provincial Highway 71 and Regina Bay, Lake of the Woods just north of the Sioux Narrows main centre. The property describes by Registered Plan 23R3293 is approximately 2.3 ha. in size and is accessible by road and water (Figure 1).

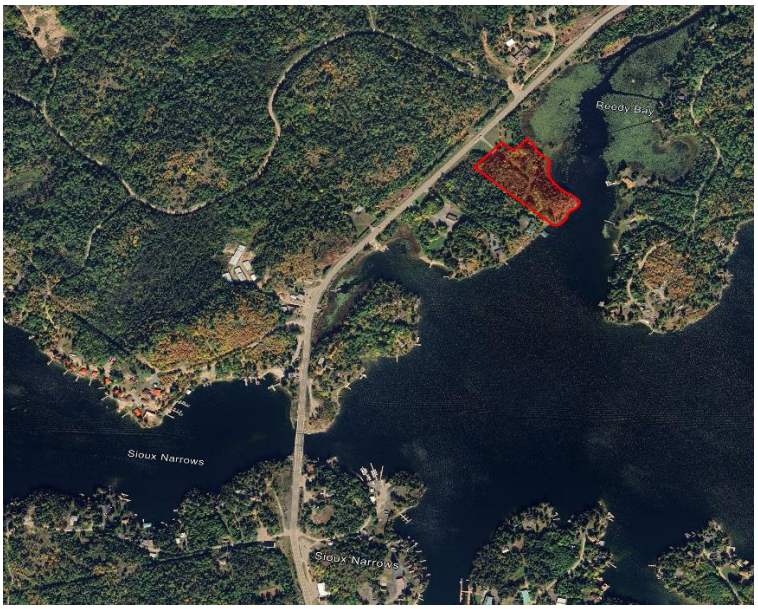


Figure 1. Pioneer Park location

3.0 Present Use of Property and Surrounding Area

In the past, the land adjacent to Provincial Highway 71 was used as a day use area while the remainder of the property was undeveloped except for a hydro corridor.

The property is no longer signed or used as a day use area, but it is still maintained by the Town.

The area southwest of Pioneer Park abutting Regina Bay has four residences and there are eight residences located on the opposite side of Reedy Bay (Figure 2). Reedy Bay is bisected by Provincial Highway 71 and is used by anglers for fishing and by the surrounding Indigenous Communities for wild rice harvesting.

Figure 2. Developments in and adjacent to Pioneer Park (Provincial Highway 71 in blue).

4.0 Proposed Development

The developer, Ayrie Developments Inc. proposes a mixed-use approach, subdividing the land into four residential units and one commercial lot. In total, 26 housing units will be built including: six single storey attached units, three duplexes, two triplexes and two quadplexes and an area designated for

commercial development. The proposed development will also include access roads, parking lots, septic systems and a multi-boat docking facility with a capacity to moor 26 boats (Figure 3). The development would occur over a ten-year period.

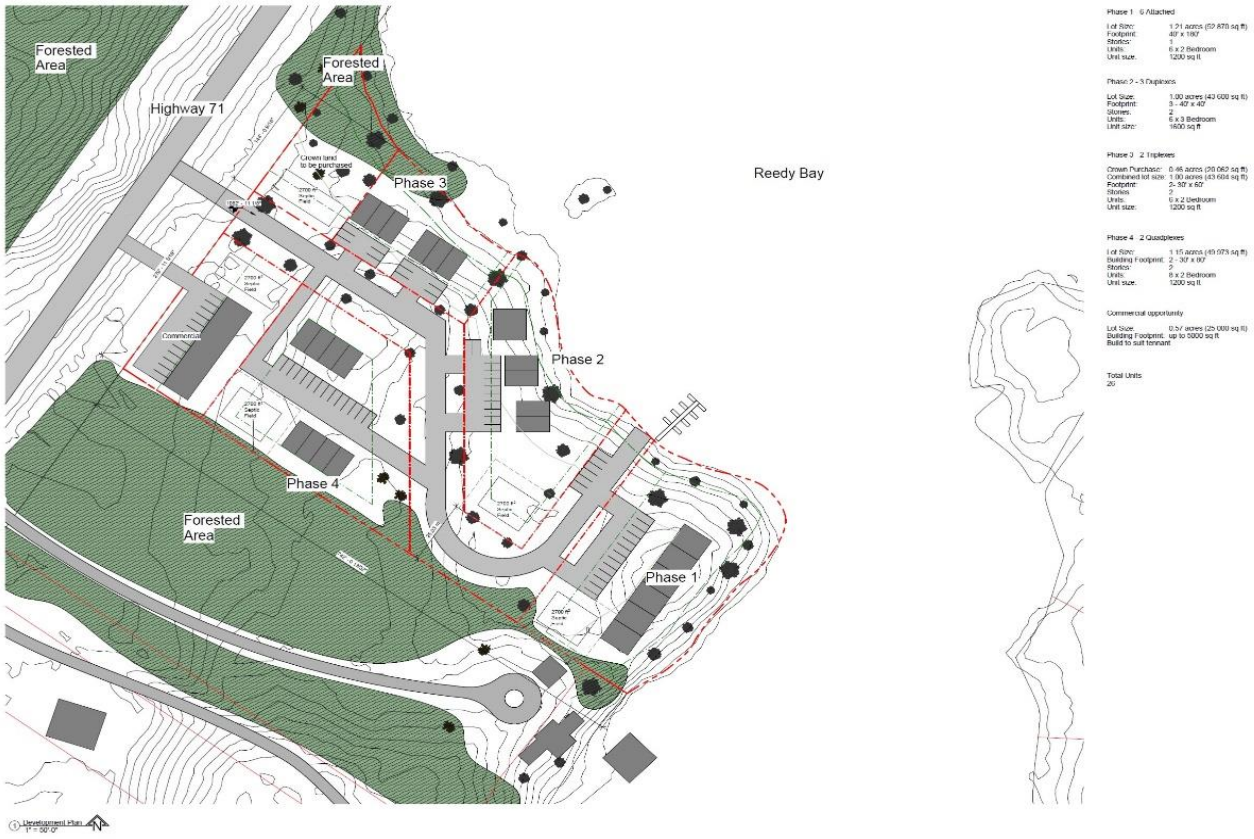


Figure 3. Proposed Pioneer Park Development

5.0 Assessments Methods

- Meetings (July 2, 18, 2024) were held with Township of Sioux Narrows – Nestor Falls representatives (H. Gropp, J. Port) to discuss terms of reference and scope of the assessment.
- Multiple meetings (July 3, 18, August 15, 2024) were held with representatives of Kenora District OMNR personnel (J. Peacock, Area Biologist, E. Lockhart Acting Area Supervisor) and Northwest Regional Office

(L. Darby, Regional Planning Ecologist, August 15, 2024) to discuss Bald Eagle Habitat Management and Significant Wildlife Habitat.
- Joint field inspection was undertaken July 10, 2024 by representatives of OMNR (J. Peacock, E. Lockhart) and myself to verify whether the Pioneer Park Bald Eagles used the nest this breeding season.

A full inventory of the fish and wildlife species using Pioneer Park or Reedy Bay was beyond the scope of this assessment. Instead, the emphasis was on habitats present and species that potentially could use these habitats for some part of their life cycle based on the literature.

- Field inspections of Pioneer Park were conducted on several dates (May 19, July 10, August 12, 13, 15, 30, 2024) assessing the status of the Bald Eagle nest and identifying main forest species and potential wildlife use of this area.
- Five transects were walked recording main tree species, common undergrowth species and birds present (identified by sight and song).
- Shoreline and Reedy Bay habitat assessments were conducted (May 19, August 15, 2024).
- The shoreline assessment evaluated suitable locations for docking that would not negatively impact fish habitat. At each potential site the following parameters were recorded: riparian cover and slope; depths at shore, 5 m. and 10 m. from shore. Substrate type was determined and aquatic vegetation presence and type (submergent, floating and emergent) were recorded. Each site was evaluated for spawning habitat potential.
- Reedy Bay was assessed to identify some of the main aquatic vegetation species present and its suitability for fish and wildlife habitat.

6.0 Reedy Bay

Reedy Bay is bisected by Highway 71. Most of Reedy Bay water depth ranges from 1.0 to 1.5 m., but in some areas close to Regina Bay depths increase to 2.5 m. The bottom is mostly soft “muck” with a thick covering of submergent vegetation (e.g., milfoil). The area between the highway and the Pioneer Park “Island” (Figure 2.) is

also covered with floating aquatic vegetation (e.g., water lilies) and emergent vegetation (e.g., wild rice). There is an “open” channel in the middle of the bay with boat channels accessing some of the residences on the east side. The density of floating aquatic vegetation is less on the Pioneer Park side of Reedy Bay from Pioneer Park Island (Figure 2.) southwards as it enters Regina Bay compared to the opposite shore. Pioneer Park shoreline north of the island is dominated by emergent aquatic vegetation such as bulrush, cattails etc. whereas the shoreline south of the island begins to transform into upland tree species.

Although Reedy Bay is not recognized as a Provincially or Locally Significant Wetland, it is an important wetland providing habitat for a diversity of fish and wildlife species. Wetlands are categorized into four habitat types: bogs, fens, marshes and swamps. Reedy Bay would be considered a marsh in this classification system.

Wetlands are among the most productive and biologically diverse habitats on the planet (OMNR 2010 a) performing a number of important ecological and hydrological functions including:

- Improve water quality by trapping sediments, removing or retaining excess nutrients and immobilizing or degrading contaminants.
- Stabilize shorelines and reduce erosion caused by surface runoff.
- Provide a variety of habitats supporting a wide diversity of plants and animals.
- Provide essential foraging, breeding, staging, overwintering habitat for a number of fish and wildlife species.
- Provide renewable harvesting opportunities for fish, wildlife and wild rice.

Wetlands, especially marshes may be used as spawning, nursery or feeding habitats by at least 40 species of fish found in Ontario (Hall-Armstrong et al. 1996). They are used as nesting, breeding, or feeding sites for over 30 species of reptiles and amphibians, 100 species of birds and 40 species of mammals in Ontario (Bellhouse and Naylor 1997). Wetlands are also home to a diversity of plants and invertebrates (e.g., dragonflies). It is estimated over 70% of all wildlife in Ontario use wetland habitats for a critical stage in their life cycle.

As indicated previously, a detailed inventory of fish and wildlife species using Reedy Bay was beyond the scope of this assessment. Instead, the focus was

directed to habitat types and what species based on common knowledge and literature could potentially use these habitats for some part of their life cycle. It must be emphasised, most of the species used as examples in the next sections discussing fish and wildlife habitats were not actually observed in Pioneer Park or Reedy Bay. They have been included primarily to demonstrate the abundance and diversity of species that may potentially use these habitats. Actual observations are noted when they occurred.

6.1 Fish Habitat

There are at least 55 different fish species in Lake of the Woods. Many of them would use marsh habitat similar to Reedy Bay for some part of their life history – spawning, rearing, feeding, cover etc. Some species have specific habitat requirements that are limited or maybe negatively impacted by shoreline alterations or developments. The Federal Fisheries Act (1985) does not allow *"work or undertakings that result in the harmful alteration, disruption or destruction of fish habitat"* (Section 35 (1)).

Fish species using Reedy Bay could range from small fish such as cyprinids (minnows), darters or bullheads to larger species like largemouth bass or northern pike. For the purposes of this assessment, the emphasis was on the larger species that may use Reedy Bay. If their habitat needs are protected, then the requirements of the other species will most likely be achieved.

A preliminary assessment was undertaken May 19, 2024 identifying what species with "special" habitat requirements may use the shorelines of Reedy and Regina Bays for spawning. This was required to determine potential docking location(s) that would not negatively impact fish habitat. Based on this assessment and prior knowledge and experience with this part of Lake of the Woods, there is a possibility walleye, white sucker, and lake whitefish, may use the shoreline adjacent to Regina Bay for spawning. Smallmouth bass may use "hard" bottom areas for nesting, while largemouth bass, black crappies, northern pike, muskellunge, and yellow perch could use the aquatic vegetated areas of Reedy Bay for spawning, rearing of young and feeding.

A more thorough assessment of the shorelines (Figure 4.) was conducted on August 15, 2024.

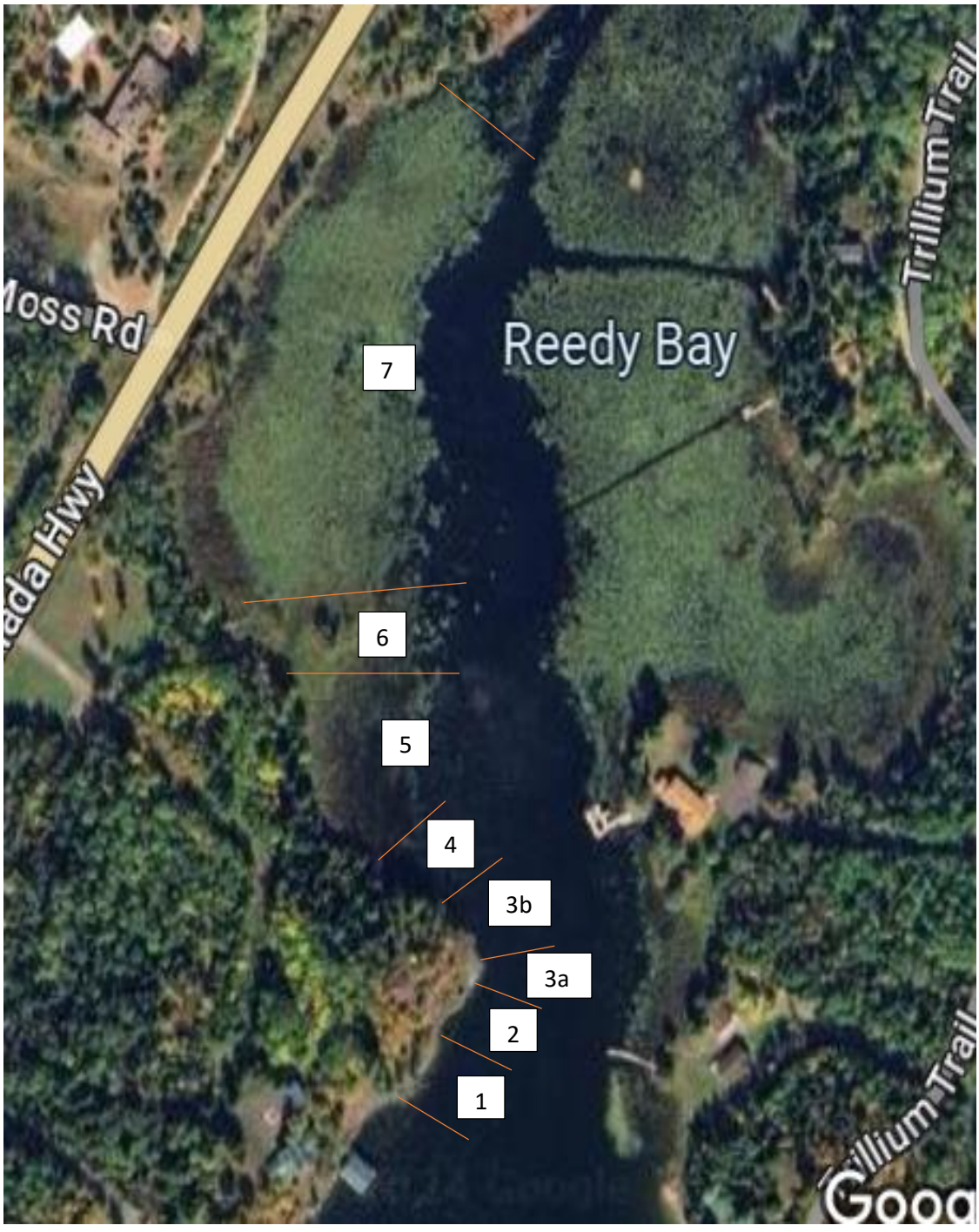


Figure 4. Reedy Bay shoreline assessment sites

Detailed results of this assessment are shown in Appendix 1. The assessment verified that shorelines (Sites 1, 2, 3a and 3b) adjacent to Regina Bay are NOT suitable spawning habitat for walleye, white sucker or lake whitefish. These

species select spawning areas on wind swept shorelines over multiple layers of clean cobble or broken rock. The interstitial spaces (spaces between the rocks) must be free of detritus for their eggs to successfully incubate. The substrate of Sites 1, 2, 3a, and 3b are either bedrock or a single layer of rocks with detritus between the rocks (Picture 1), not suitable for spawning or incubation.

Picture 1. Single layer of rock with sand and detritus between rocks

Docks would have no negative impact on fish habitat here, but there would be navigation concerns regarding Site 3b. Similarly, the assessment concluded Site 4 was not critical fish habitat. Docking would be suitable here, but there is concern regarding potential impacts on water quality.

The shorelines associated with Sites 5, 6, and 7 and Reedy Bay itself, are covered with submergent, floating and emergent aquatic vegetation (Picture 2.).

Picture 2. Reedy Bay submergent, floating and emergent aquatic vegetation

The depth, substrate and aquatic vegetation are ideal for largemouth bass, black crappie, northern pike, muskellunge and yellow perch spawning, nursery and feeding habitats.

Male largemouth bass and black crappie build nests on “soft” bottoms adjacent to structures such as logs, rocks or aquatic vegetation. The male fans the eggs with his fins keeping them clean of sediment and protects them from predators. After hatching the young will remain in the area feeding and using aquatic vegetation as cover from predators.

Northern pike scatter adhesive eggs over mats of aquatic vegetation. The eggs adhere to the vegetation preventing them from suffocating on the mud bottom. After hatching, the larva remains attached to the aquatic vegetation by an adhesive head gland until it is capable of free swimming. Muskellunge use similar aquatic vegetation for spawning but the eggs and larvae are not adhesive and rely on thick mats of aquatic vegetation keeping them off the mud bottom. The young of both species use marshes for hunting and protection from other predators.

Yellow perch can spawn virtually anywhere. They have a special “accordion-like” egg mass, they deposit over sunken logs, branches or aquatic vegetation. Young of the year perch will also use back bays like Reedy Bay for feeding and cover.

Although smallmouth bass spawning habitat was not found during the assessment, J. Peacock, Kenora District Area Biologist confirmed smallmouth bass spawn along the shore of Reedy Bay in areas with hard bottoms adjacent to boulders.

In-water developments (e.g., docks, boathouses) and site alterations (e.g., dredging) can harmfully alter, disrupt or destroy spawning and nursery habitats by direct coverage and/or removal of aquatic vegetation to accommodate docking and boating. Northern pike and muskellunge eggs and larvae are particularly sensitive to increased sedimentation caused by erosion or in-water disruptions.

6.2 Wildlife Habitat

The following are species that may use marsh habitat similar to Reedy Bay for some part of their life cycle and are known to be present in this region. It is not intended to be a thorough or exhaustive list, but instead to demonstrate the

richness and diversity of wildlife species that are dependent on wetlands. None of species listed were actually observed in Reedy Bay except for a western painted turtle and a pair of Trumpeter swans observed on the other side of the highway.

6.2.1 Amphibians and Reptiles

The following are confirmed occurrences of amphibians and reptiles found in the "vicinity" of Lake of the Woods and Kenora District (Ontario Nature 2024). Central newt, boreal chorus frog, grey tree frog, mink frog, northern leopard frog, spring peeper, American toad, green frog, snapping turtle, western painted turtle, red-sided garter snake.

6.2.2 Birds

Birds may use wetlands for a variety of reasons. The following habitat uses and species were obtained from the Significant Wildlife Habitat Mitigation Tool (2014). Only species with ranges in this part of Ontario were included (Environment and Climate Change Canada 2024).

6.2.2.1 Waterfowl Nesting Area

Wetlands can be used by these birds throughout the year, but for successful reproduction, the marsh requires adjacent upland areas with suitable nesting habitat e.g., grasses, sedges, rushes and low land shrubs. Although not a large area, the habitat along the shore of Site 7 (Figure 4.) may provide nesting habitat for one or more of these species: Canada goose, American green-winged, American black duck, mallard, northern pintail, blue-winged teal, gadwall, American wigeon, wood duck, hooded merganser, common merganser, red-breasted merganser, bufflehead, common goldeye.

6.2.2.2. Waterfowl Stopover and Staging

Waterfowl often stop in traditional areas during spring and fall migrations to rest, feed and or wait out bad weather. Marshes which provide a good interspersion of open water and submergent and emergent vegetation are preferred because they provide an optimum mix of food and cover. These stop over or staging areas are usually large in size. Although Reedy Bay is relatively small, it could be used in conjunction with other nearby marshes as a stop over by the following species: Canada goose, lesser snow goose, American Black Duck, Northern Pintail,

Northern Shoveler, American Wigeon, Gadwall, Green-winged Teal, Blue-winged Teal, Hooded Merganser, Common Merganser, Lesser Scaup, Long-tailed Duck, Ring-necked Duck, Common Goldeye, Bufflehead, Redhead, Ruddy Duck, Red-breasted Merganser, Wood Duck, Mallard.

6.2.2.3 Marsh Bird Breeding Habitat

Marshes are preferred habitat for a variety of Ontario birds including: American Bittern, Sora, Red-necked Grebe, Ring-necked Duck, American Coot, Marsh Wren, Red-winged Blackbird, Sedge Wren, Common Loon, Solitary Sandpiper, Yellow Rail.

6.2.3 Semi-aquatic Mammals

Wetlands are used by the following semi-aquatic mammals for breeding, feeding and cover: Beavers, muskrats, and otters.

An abandoned beaver lodge is located along the shores of Site 4.

6.3 Wild Rice

Wild rice grows in shallow lakes or quiet rivers in depths between 15 to 90 cm. on soft organic (mud) bottoms. It is an annual grass, reproducing by seeds. The seeds are an important food source for waterfowl and marsh birds, while musk rats are particularly fond of the growing shoots as food.

The Ojibwe call wild rice, manoomin or the “good (mano) seed (min). Wild rice is not only a food, but is important culturally, economically and spiritually to the Ojibwe (Strass 2009, MNOPEDIA 2023). Historically, the Ojibwe people would set up camps near wild rice areas and harvest manoomin by canoe. The presence of oak stands in Pioneer Park may indicate Reedy Bay has been a wild rice harvesting area for many years.

The tradition and importance of manoomin to the Ojibwe people continues today. Indigenous people of the area continue to harvest manoomin in Reedy Bay and surrounding areas.

. 

Picture 3. Wild Rice

7.0 Concerns Regarding Reedy Bay

There are a number of concerns regarding the proposed development and how it may affect water quality, fish and wildlife habitat and wild rice in Reedy Bay. These include:

7.1 Concern 1

The land mass of Pioneer Park is small (2.3 ha.). The septic systems will be inadequate to handle the waste from the proposed development of 26 units with an occupancy capacity of 116.

Mitigation Recommendations:

The following are policies taken directly from the Township's Official Plan:

- 4.4.3 All development sites shall be assessed by the Ministry of the Environment and or Northwestern Health Unit in order to determine the suitability of the site for septic systems. A developer may be required to provide detailed terrain, hydrogeographic, groundwater impact assessments or other relevant information

to prove the suitability of the site for private or commercial services. In cases where 5 or more lots/units are proposed, the developer will be required to demonstrate through technical reports prepared by a qualified consultant in accordance with the Ministry of the Environment guidelines that the proposed lots/units meet Ministry of Environment requirements with respect to both ground water quality and quantity and potential impacts on ground water.

- 4.4.6 Proponents will be responsible for receiving approval from the Ministry of the Environment and or Northwestern Health Unit for septic/tile fields on an individual bases.

- 4.20.3 Wherever possible, septic systems servicing shoreline areas shall be located at least 30 metres from the high-water mark of the abutting waterbody. All residential lots shall be large enough to ensure that sewage systems shall not be within 30 metres of a waterbody.

7.2 Concern 2

The proposed residential development will degrade water quality in Reedy Bay through increased nutrients, sedimentation and contaminants. This may negatively affect the wetland, fish and wildlife habitat, wild rice and those who depend on Reedy Bay for drinking water.

Mitigation Recommendations:

– The proponent develops and submits a sediment control plan, utilizing standard sediment control measures such as silt curtains, berms etc. ensuring sediment does not enter Reedy and Regina Bays during and after construction.

From the Township's Official Plan:

- 4.17.2 – *Storm sewer management shall be considered a part of the development approval process particularly for subdivisions, multiple residential, commercial, industrial and institutional developments and shall be used to ensure that the quality of runoff is at least maintained at pre-development levels. Storm water management practices shall be used to minimize storm water volumes and contaminate loads and shall encourage the use of natural storm water management practices and maintain or increase the extent of vegetative and*

pervious surfaces where such would not impact groundwater resources used for domestic water supplies.

- 4.17.3 - *Any development adjacent to Provincial Highway 71 will require the submission of a storm sewer water management plan or report detailing the intended treatment of the calculated runoff for review and approval by the Ministry of Transportation.*

Vegetation buffers between developments and waterbodies are commonly used to remove sediment, contaminants and nutrients. In the Official Plan 4.21.2 states *"Where new development occurs adjacent to any navigable waterway within the municipality a three metre natural vegetation area will be required adjacent to 80% of the shoreline to minimize the impact of development on the water quality of the waterbody."* However, Reedy Bay is not only a navigable waterway, it has fish spawning and feeding, avian nesting sites, waterfowl habitat and wild rice harvesting. Reedy Bay would be considered a sensitive area (Official Plan 6.3.1) warranting additional protection from sediment, contaminants and nutrient runoff.

The literature suggests, the wider the vegetation buffer, the greater its efficiency and effectiveness in reducing sediments, contaminants and nutrients.

- Castelle et al. 1994 recommended buffer widths of 15 to 30 m. Fifteen metre buffers provide for maintenance of the natural physical and chemical characteristics of aquatic resources but greater widths (e.g., 30 m.) are required for maintenance of biological components of wetlands and streams.
- Carolinian Canada 2000. "Wetlands: 30 metres for water-quality benefits."
- Wenger 1999. To filter nutrients (e.g., phosphorus and nitrates) and other contaminants from runoff, 30 m. is recommended, while buffer widths of 60 m. are more efficient at removing total suspended solids.
- Desbonnet et al. 1995 reported 35 m. vegetative buffers are required to removes 60% or greater of sediments and pollution while a 2000 m. buffer is required to remove 99% of sediments and pollution.

For forest management operations, OMNR determines the width of the vegetation buffer (AOC) based on the adjacent slope. That is, a 0-15% slope requires a 30 m. buffer while slopes greater than 45% require a 90 m. Within the

AOC a number of forest activities are allowed and not allowed depending on the forest canopy and potential impact to the adjacent water body. Although it is relatively easy to calculate the required vegetation buffer by slope, it would be extremely difficult to use these guidelines for non forestry activities or residential developments.

More appropriate guidelines regarding vegetation buffers for the proposed Pioneer Park development can be found in the Clearwater Bay (OMNR 2010 c) and Shoal Lake (OMNR 2010 d) Restricted Area Orders (RAO). Both RAOs are administered by the Kenora District Office (OMNR). These guidelines were developed to protect water quality and lake trout habitat in Clearwater Bay, Lake of the Woods and water quality and walleye and lake whitefish habitats in Shoal Lake.

Both guidelines require a 20 m. setback defined as: *"the area immediately adjacent to the shoreline extending 20 metres back from the normal high-water mark. Within the 20 m. setback area there shall be essentially no alteration to the vegetation cover or the existing soil mantles, so as to minimize erosion and maximize nutrient retention".* Acceptable modifications within this setback include:

- footpaths from cottage to lakeshore not to exceed a maximum width of 3 m.
- selective removal of natural vegetation cover to provide a view from the cottage as well as the removal of hazardous trees.
- A clear space near the shoreline for the placement of one ancillary building not to exceed 24 square metres.

For the proposed Pioneer Park development, it is recommended a minimum 20 m. non-disturbed vegetative buffer similar to the Clearwater Bay and Shoal Lake RAOs be considered to minimize erosion and maximize nutrient retention. This would be consistent with direction in the Official Plan:

4.20.1 (b) Council strongly encourages shoreline areas to be kept in their natural state as much as possible through the establishment and/or retention of the natural features and shoreline (riparian and littoral vegetation).

Besides maintaining a vegetation buffer, Ministry of the Environment, Conservation and Parks should be consulted on best practices regarding storm water management, e.g., end-of-pipe controls (MECP 2003) with the goal to maintain Reedy Bay water quality at pre-development levels. A water quality monitoring program, based on Ministry of the Environment, Conservation and Parks recommendations should be implemented to determine predevelopment and post development levels. If there is a decrease in water quality attributed to the development then appropriate mitigation measures should be implemented.

7.3 Concern 3

Physical loss of fish and wildlife habitat and wild rice in Reedy Bay.

Mitigation Recommendations:

Reedy Bay is not an “untouched” wetland. There are residences, docks and boathouses on the shoreline opposite Pioneer Park and boat channels are maintained through the aquatic vegetation accessing some of these residences. However, to maintain Reedy Bay in its present state, it is recommended no further site alterations or developments occur in conjunction with the proposed Pioneer Park development. That is, there should be no docks, boathouses or boat launch on the Pioneer Park shoreline and no dredging or removal of aquatic vegetation should occur.

7.4 Concern 4

The proposed multi-dock facility (26 slips) will affect water quality in Reedy Bay through oil/gas contamination from boats and increased boat traffic will stir up sediments in the shallow bay.

Asplund 2000 provides an excellent review of the effects of motorized watercraft on aquatic ecosystems. Boats have been shown to affect water clarity and increase algae growth by disturbing sediments and resuspending nutrients. Water quality maybe degraded by the discharge of unburned fuel into the water column. In large water bodies this may not be a concern because of dilution and hydrocarbons are volatile and disperse quickly, but in a small, shallow water body like Reedy Bay the effects are unknown. Asplund 2000 also reported polyaromatic hydrocarbons and fuel additives may pose a concern for drinking water supplies.

Studies have found the build up of certain contaminants in the sediment near marinas or high concentrations of boats.

Mitigation Recommendations:

- The shoreline assessment identified potential docking locations, at Sites 1, 2, 3a, 3b, and 4 (Figure 4.) that would not negatively impact fish habitat. However, locating docks at Site 3b could pose a navigation concern and this site should not be considered. To alleviate the concerns regarding contaminants and increased boat traffic in Reedy Bay, the docking facility should not be located at Site 4. Instead, all docking should be restricted to the shores of Regina Bay (Sites 1, 2, 3a). Also, by not locating the docks in Reedy Bay, eliminates the concern regarding docks within the Bald Eagle 100 m. primary zone (see section on Bald Eagles).

7.5 Concern 5

The increased number of residents living adjacent to Reedy Bay will increase angling pressure in Reedy Bay resulting in decreased fish abundance.

Mitigation Recommendations:

- The Ministry of Natural Resources manages fish population though regulations and not access. However, if increased angling pressure threatens fish populations in Reedy Bay, the Municipality can request the Ministry of Natural Resources implement a fish sanctuary closed to angling year-round.

8.0 Pioneer Park

Pioneer Park has a small land mass (2.3 ha.), most of it undeveloped with a natural vegetation cover. The exceptions are a small area adjacent to Provincial Highway 71 converted to a “grass day use area”, plus a hydro corridor transecting the property.

The wildlife habitat assessment of Pioneer Park focussed primarily on the Bald Eagle Nest and the Significant Wildlife Habitat associated with the nest. In

addition, a number of transects were walked identifying tree species, common plants and shrubs, birds, and signs of other wildlife use.

Besides a relatively intact forest canopy, the area possesses a diverse variety of tree species common to the boreal forest e.g., balsam fir, trembling aspen and some less so, bur oak and iron wood. In addition, to the super canopy white pines providing nesting and perching for Bald Eagles, there are four stands of tree species worthy of further discussion. These include the bur oak/iron wood stand adjacent to Regina Bay (Picture 4) and the bur oak stand located on and adjacent to the island/peninsula in Reedy Bay (Picture 5). Bur oak is more common in southern Ontario and Manitoba and is sometimes used as a first indicator of Indigenous use or encampments. Acorns provide food for bears, squirrels and rabbits, while the tree itself provides browse for deer and habitat for birds (Ontario 2023). Iron wood is more commonly associated with the Great Lakes- St. Lawrence Forest. Iron wood seeds are eaten by white-tailed deer, squirrels, grouse, and red-breasted grosbeaks (Ontario 2023).

Pictures 4 and 5. Oak/iron wood stands adjacent to Regina Bay and on Pioneer Park Island

Although there is black ash (and some green ash) scattered throughout the property, the main stand of black ash is located in the lowland between the two

hydro lines (Picture 6). Black ash is predominantly a wetland species found in swamps, flood plains and fens and has cultural significance to Indigenous peoples (Ontario 2023).

Black ash has recently been listed as an endangered specie under the Species at Risk Act because it is highly susceptible to the invasive emerald ash borer. Other than Thunder Bay, Northwest Ontario is exempt from the restrictive regulations to protect this tree specie (schedule 1 of O. Reg6/24). However, land owners in Northwest Ontario are encouraged to voluntarily protect black ash (L. Hutton Species at Risk Biologist pers. comm.).

Picture 6 Black Ash stand

There is a large stand of northern white cedar (Picture 7) extending westwards from the Pioneer Park day use area. This specie is usually found in swampy areas providing browse for white-tailed deer in the winter. Small mammals, including hares and squirrels eat cedar stems and the tree itself provides shelter for a variety of bird species. White cedar can live for over 200 years and has cultural significance to Indigenous peoples (Ontario 2023).

Picture 7 Northern white cedar

Even though Pioneer Park is small, its diversity of tree species provides habitat and food for a variety of bird species and small mammals. During the transects walks, wind conditions were not conducive for recording bird songs but the following species were seen or heard: blackcap chickadee, white-breasted nuthatch, blue jay, gray jay, crow, turkey vulture, bald eagle, trumpeter swans (opposite side of highway), raven, belted kingfisher, barn swallow, cedar waxwing, white throated sparrow, swamp sparrow, spruce grouse, red winged blackbird, red eyed vireo, hermit thrush.

Besides the Bald Eagle nest, no other bird nests were observed. A beaver lodge was noted but it was considered abandoned because of vegetation growing on it (Picture 8) and there were no recent signs of beavers feeding in the area. There were however, abundant signs of deer and rabbit browse throughout the property and trails leading to the water (Picture 9).

Picture 8 Abandoned beaver lodge

Picture 9 Trail leading to water

9.0 Concerns Regarding Pioneer Park

Concerns regarding the Pioneer Park Bald Eagle nest are discussed in the Bald Eagle section.

9.1 Concern 1

The proposed development as planned will remove the existing native tree and vegetation cover and replace it with buildings and landscaped areas. Besides protecting the nest tree (legally required under the Fish and Wildlife Conservation Act 1997) there is no legal responsibly or policy direction requiring the protection of the other tree species in Pioneer Park. However, by protecting and incorporating native tree species into the development plans, this may preserve the habitats of bird and small mammals that depend on them. This is also consistent with the Township's official policy:

- 4.21.1 Council shall encourage the preservation of mature vegetation, existing trees and tree lines, wherever possible.

Mitigation Recommendations:

- Preserve all mature white pines (dead or alive).

- Protect the existing bur oak/iron wood stands incorporating them into future landscaping plans.

- Although Northwest Ontario is exempt from the Species at Risk restrictions concerning black ash, it is recommended voluntarily protecting them where possible. This includes no cutting of black ash greater than 1.37 m. in height or with a diameter greater than 8 cm. and avoid landscape changes within 30 m. of a black ash tree. It may not be possible to protect all individual black ash trees on the property, but the black ash stand previously identified should be preserved.

- Protect and include the northern white cedar stand into the future landscape plan.

- Maintain a 20 m. vegetation buffer between the development and Reedy and Regina Bays.

9.2 Concern 2

OMNR indicated most wild bird species (except American crow, brown-headed cowbird, common grackle, house sparrow, red-winged blackbird, and European starling) are protected from take/destruction (intentional or incidental) by either the federal Migratory Birds Regulation, 2020 (MBR) or the provincial Fish and Wildlife Conservation Act, 1997 (FWCA). Tree and/or vegetation removed during bird nesting season has the potential to destroy nests and/or eggs and contravene the MBA and the FWCA.

Pioneer Park and Lake of the Woods fall within zone C4 of Canada's nesting zones (Environment and Climate Change Canada 2024). The regional nesting period for zone C4 is mid-April to late August. Environment Canada and Climate Change advises "*if there are occupied migratory bird nests where you plan to work, activities that could disturb or destroy nests should be avoided, adapted,*

rescheduled or relocated. The best way to avoid disturbing or destroying active nests is to avoid conducting harmful activities during the breeding season"

Any occupied nest found should be protected with a buffer zone until the young have permanently left the vicinity of the nest. The buffer zone is determined by a setback distance which varies greatly according to:

- Degree of tolerance of the species
- Previous exposure to disturbances
- Level of disturbance
- Landscape context

Environment and Climate Change Canada provides no specifics on the size of setbacks. Instead, appropriate setbacks are determined on a case-by-case bases.

However, OMNR's Forest Management Guide for Conserving Biodiversity at the Site and Stand Scales (2010 b) provides guidance on how to determine appropriate setbacks and timing restrictions for different groups of birds. These include: uncommon and common stick nesting raptors, cavities used by raptors, ravens, nests used by song birds etc. The setbacks range from very large (50 m.) with timing restriction (March 15 – July 15) for Great Grey Owls to 3 m. buffers around the nest trees of song birds with no timing restrictions. These buffers are intended for nest sites in relatively undeveloped situations, where birds maybe intolerant of human activity. For birds nesting near disturbed areas or accustomed to human activity, these setbacks maybe too conservative and site-specific measures maybe more appropriate.

Environment and Climate Change Canada indicates nests of most migratory birds may be destroyed, damaged, disturbed or removed when they do not contain a migratory bird or viable egg. This is generally after the breeding season. The only exceptions to this are the nests of the 18 species listed in Schedule 1 of the MBR 2022. These nests and trees must be protected year - round. Of these, only blue herons and pileated woodpeckers are known to be in this part of Ontario.

Mitigation Recommendations:

- No site alteration or development should occur during the general nesting period from mid-April to the end of August.

OR

- If nests are encountered during site clearing or construction, the nest tree must be protected with the appropriate setback and timing restriction (OMNR 2010 b).

10.0 Bald Eagle

10.1 Biology

Bald Eagles often use shoreline habitat for nesting, perching, and foraging. In Northwest Ontario, Bald Eagles show a clear preference for white pine dominate coniferous/mixed forests for nesting. This specie, typically nests in super canopy trees, usually white pine with an obstructed view and flight path in all directions (Brownell and Oldham 1984). They also require snags, dead, partial dead or living trees for perching, usually within 400 m. of the nest tree (James 1984a; Caton et al 1992).

Bald Eagles build large stick nests that are added to annually and maybe used for decades (Szuba and Naylor 1998; Buehler 2000). Nests found in Ontario measured from 0.8 to 3.0 m. in diameter, averaging 1.5 to 1.9 m. and from 0.5 to 3.0 deep, averaging 0.9 to 1.2 m. (Peck and James 1999). Bald Eagles show a strong fidelity to nesting territories, typically using the same nest over successive years. They may however, have one or more alternate nests near the original or primary nest. Only one nest will be used during the breeding season. There maybe as many as seven alternate nest structures associated with a single pair of Bald Eagles (OMNR 1987). Alternate nests are usually close to each other but maybe as far apart as 5 km. (Stocek and Pearce 1981; Brownell and Oldham 1984).

Access to a foraging area is an essential component of their breeding habitat. These usually are shallow, productive waterbodies or marshes with abundant fish populations (Armstong 2014). Bald Eagles prefer eating fish, but are opportunistic foragers and scavengers (Buehler 2000). They will prey on birds, usually waterfowl or gulls, as well as semi-aquatic mammals e.g., musk rats and otters (Dunstan and Harper 1975; Johnsgard 1990; Ewin and Andres 1995). Bald Eagles are kleptoparasites, stealing prey from other eagles, ospreys, ravens or crows (Fisher

1985; Environment Canada 2001 a) and scavengers feeding on road kill carrion and urban waste at landfill sites (Elliott et al. 2006).

Their sensitivity to disturbance may vary with the nesting cycle and the eagle's experience or exposure to human activities and developments. Nesting eagles are most sensitive to disturbances from the time the birds return to the nest site in the late winter/early spring through incubation and the first week after hatching (Grier et al. 2002). During this critical period, they are most intolerant of external disturbances and may abandon the area (OMNR 1987).

Bald Eagle tolerance of human activity and development is highly variable. "Wilderness eagles" or those with no exposure to human activity are the least tolerant. In contrast, there are many examples on Lake of the Woods of successful nesting adjacent to or in close proximity of cottages, boat traffic and recreational activity (Grier et al. 2002). Some eagles may become habituated to human activity but most are susceptible to disturbance (Broley 1947; Brownell and Oldham 1984; Kennedy and McTaggart-Crown 1998). Grier et al. 2002 concluded, Bald Eagle tolerance was a complex issue but felt their tolerance to human activity was dependent on timing. Although Bald Eagles may successfully nest near cottages, these are seasonal dwellings and human activity or presence usually occurs after the birds have committed themselves to the nest for that breeding season.

10.2 Bald Eagle Status and Guidelines

Bald Eagles were delisted in 2023 (COSSARO 2022) and are no longer classified as a Species at Risk (special concern). However, the specie's habitat is considered Significant Wildlife Habitat (Natural Heritage Reference Manual 2010 a) which includes the primary nest, alternative nests, perch trees and forage habitat within a 400 to 800 m. radius of the nest tree dependent on line of sight (L. Darby NW Region Planning Ecologist pers. comm.; OMNR 2010 b, 2014).

To be consistent with the Provincial Planning Statement (2024), planning authorities shall protect Significant Wildlife Habitat by:

- Not permitting development and site alteration in Significant Wildlife Habitat unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

- Not permitting development and site alteration on adjacent lands unless the ecological function has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

The Natural Heritage Reference Manual (2010 a) defines adjacent lands as:

"The lands relevant to which impacts must be considered and the compatibility of a development proposal must be addressed."

For Significant Wildlife Habitat, OMNR recommends a 120 m. zone of consideration.

Whereas in the Township's Official Plan:

6.3.8 Adjacent lands

Development and/or site alteration may be permitted on adjacent lands to natural heritage feature or area where Council is satisfied that there will be not negative impacts on the natural feature or ecological function for which the area is identified.

Adjacent land is defined as 50 m. for Significant Wildlife Habitat.

The Significant Wildlife Habitat Mitigation Support Tool (OMNR 2014) categorizes Bald Eagle Significant Wildlife Habitat as rare or specialized. This guideline and the Forest Management Guide for Conserving Biodiversity at the Site and Stand Scales (2010 b) provide OMNR's most recent direction on how to protect Bald Eagle nesting habitat and mitigation options for development. These guidelines rely on protective zones and timing restrictions originally developed in the Bald Eagle Habitat Management Guidelines (OMNR 1987).

The Bald Eagle Habitat Management Guidelines (1987) describes four periods of sensitivity to disturbances:

1. Most Critical Period - extends approximately one month prior to egg laying (courtship, nest building/repairing) through the incubation period. In Northern Ontario this period is from mid-March to late May.

2. Moderately Critical Period – approximately one month prior to the most critical period and about four weeks after hatching. This period extends from mid-February into June in Northern Ontario.
3. Low Critical Period – extends from the time the chicks are one month of age until six weeks after fledging. In Northern Ontario this period encompasses from the end of June to the end of August.
4. Not Critical Period – the period between breeding seasons or September to mid-February.

These timing restrictions have been revised and simplified in the Significant Wildlife Habitat Mitigation Support Tool (2014) which recommends construction activity should never occur during the critical breeding period defined as March 5 to August 31 for Northwest and Northeast Ontario. Whereas, the Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales (2010 b) defines the critical breeding period from March 1 to August 31 for Northwest and Northeast Ontario.

The Bald Eagle Habitat Management Guidelines (1987) recommends three protective buffer zones around active eagle nests. The primary zone or most sensitive zone extends 100 m. from the nest and no activity or alterations are permitted except for management activities to improve conditions for the eagles. The secondary zone extends 200 m. from the nest and prohibits activities that significantly change the landscape. The tertiary zone extends 400 to 800 m. from the nest depending on line of sight. Activities resulting in significant changes to landscape such as construction and clear cutting should be prohibited. Similar protective zones are used in Area of Concern (AOC) planning in forest management plans (OMNR 2010 b).

Bald Eagle Significant Wildlife Habitat or the nest area includes: the primary or active nest, alternative nests, perch trees, and forage habitat within a 400 to 800 m. radius of the active nest depending on line of sight. The protective zone can be increased or made smaller depending on the bird's tolerance for human disturbances; on the type activity occurring (e.g., pedestrian vs vehicular traffic); or the intensity of the disturbance (frequency and duration). Whether the birds are habituated to human disturbances or not, proponents need to demonstrate the proposed development is unlikely to displace the birds (OMNR 2014).

10.2.1 Active vs Inactive Nest

Nests known or suspected to have been occupied at least once within the past five years are considered to be active. If the nest and all alternate nests within the nest area (400 to 800 m.) have been documented as unoccupied for at least three or more consecutive years, then the nest is considered inactive (OMNR 2010 b). L. Darby, NW Regional Planning Ecologist indicated there is no set date when a nest is considered inactive during the breeding season, but recommended at least two visits during the nesting window to determine the status of the nest.

When a nest is classified as inactive, it is no longer considered Significant Wildlife Habitat and the protective zone no longer applies (L. Darby NW Regional Planning Ecologist, pers. comm.). However, OMNR suggests where possible, proponents incorporate mitigation measures described in the Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales (2010 b) and Bald Eagle Habitat Management Guide (1987) into their development plans.

The Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales (2010 b) recommends a 100 m. Area of Concern (AOC) centred on the inactive nest. Harvest is not permitted within 20 m. of the inactive nest. For the remaining area, the forest canopy should be at least or greater than 60% uniform cover. This usually restricts harvesting to thinning, preparatory sheltered harvest or single tree selective harvest. No timing restrictions on harvest, renewal, or tending operations.

The Bald Eagle Habitat Management Guidelines (1987) are more ambiguous regarding an abandoned tree:

"When a nest structure disappears but the nest tree remains the buffer zones should remain in effect through at least three consecutive breeding seasons. If the nest is not rebuilt, remove the zoning but still consider the area as essential habitat and protect it accordingly".

"Essential habitat at each site is a minimum 260 ha., including aquatic and terrestrial habitat used for foraging and essential features of air, water, land and solitude necessary for the breeding pair at the site"

10.2.2 Perch Trees

The Significant Wildlife Habitat Mitigation Support Tool (2014) indicates perch trees should be protected and a buffer area established around them. The buffer size depends on the nature of the perch site, the habitat feature it overlooks and the distance to the forage area.

11.0 Present Status of the Bald Eagle Nest

On May 19, 2024 while undertaking a preliminary shoreline assessment, the Pioneer Park Bald Eagle nest was observed. The nest appeared small, partially falling apart on one side, with nest material on the ground adjacent to the white pine tree. No Bald Eagles were observed or heard on the nest or in the general area. It was concluded the nest was not used this year for breeding.

Pictures of the nest (Picture 9) were sent to the Municipality, the developer and OMNR. It quickly became apparent the nest was well known in the Community. OMNR first recorded this nest in 2001, but had no further information on its present status.

July 10, 2024 OMNR Kenora District staff (J. Peacock and E. Lockhart) conducted a joint inspection of the nest site and area confirming the nest was not used this year for breeding. However, based on fish skeleton remains (Picture 10) they surmised the nest may have been used last year or at the very least in the last five years. Therefore, the nest is still classified as active.

Picture 9 Pioneer Park Bald Eagle nest Picture 10 Fish remains found

Discussions with Municipality Representatives (H. Gropp and J. Port) confirmed Bald Eagles have been observed perching on the nest tree and we heard them on two occasions while conducting our assessments. Bald Eagles may not be using the nest for breeding this year, but they are still using Reedy Bay for foraging.

Before this nest can be classified as inactive and the Significant Wildlife Habitat designation removed, no Bald Eagle nesting must be documented for the next two breeding seasons (2025, 2026) on the primary nest or any alternate nest within 400 to 800 m. of the primary nest.

With its close proximity to Sioux Narrows, Provincial Highway 71 and a number of residences, the Pioneer Park Bald Eagles would not be considered wilderness eagles. The Bald Eagles that nest here are accustomed to some level of human activity and development.

The following developments were included to illustrate the amount of human activity and development in close proximity to the nest tree. All measurements are approximate. The closest site alteration to the nest is the former day use area of Pioneer Park which is approximately 76 m. away, while the most disruptive feature, Provincial Highway 71 is about 115 m. from the nest tree. The four

residences to the south on Regina Bay are 129, 195, 215 and 269 m. away. While the distances from the nest tree to the eight residences on the other side of Reedy Bay range from 218, 265, 296, 350, 350, 374, 403 and 538 m. and all are visible from the nest. Father Moss Road is approximately 194 m. while the abandoned school is 266 m. from the nest tree. Many of the buildings in Sioux Narrows itself are relatively close (e.g., Motlong's Rod and Reel Resort 667 m.).

The former day use area of Pioneer Park falls within the 120 m. Adjacent Land designation recommended in the Natural Heritage Reference Manual (2010 a). Provincial Highway 71 may also be located within the 120 m. boundary or just on the border. The secondary (200 m.) and tertiary (400 to 800 m.) protective zones described in the Bald Eagle Habitat Management Guidelines (1987) are compromised by a number of developments and human activities.

Only the critical primary zone (100 m.), the most restrictive and protective zone was relatively intact until recently. The natural forest canopy and undergrowth was intact within the 100 m. of the nest tree except for a portion of the former day use area and the hydro corridor transecting the property. However, sometime in July, 2024 significant areas and trails adjacent to the nest tree and within the 100 m. primary zone were cleared to install hydro poles and excavate test pits (Pictures 11, 12, 13, 14).

Picture 11 Trail leading to nest tree

Picture 12 Test pit adjacent to nest tree

Picture 13 Trail adjacent to Reedy Bay

Picture 14 Test pit adjacent to neighbour

Although this work was done when the nest was not being used for breeding, Bald Eagles were still using the area for perching and foraging. How they will react to these disturbances is not known.

11.1 Alternate Nests

OMNR Fish and Wildlife values map (Figure 5) reveals a number of Bald Eagle nests in the vicinity of Pioneer Park and Reedy Bay, but none within the OMNR defined nest area of 400 to 800 m. from the primary nest. The nests range in distances of 1.6 to 3.3 km. from the Pioneer Park nest. OMNR does not conduct annual Bald Eagle nest surveys on Lake of the Woods and it is unknown if any of the identified nests are active, still present or if new nests have been built within the 400 to 800 m. nest area. However, after the joint inspection (July 10, 2024), OMNR staff confirmed by boat, nest 1150975063 on the island in Regina Bay was no longer present, while nest 121203264 was verified. This nest is approximately 1.6 km. from the Pioneer Park nest.

Figure 5. Bald Eagle nests in the vicinity of the Pioneer Park nest

11.2 Perch Trees

Although not visually confirmed as being used during the site assessments, it is assumed the four live and two dead white pines adjacent to Regina Bay are perch trees for Bald Eagles.

11.3 Forage Area

Reedy Bay marsh is mostly untouched except for the residences on the shores opposite Pioneer Park and the boat channels accessing some of these residences. It is ideal Bald Eagle foraging habitat, shallow, productive with abundant fish populations. The close proximity of Provincial Highway 71 also provides opportunities for scavenging carrion (road kills).

11.4 Recommended Actions:

- Monitor the primary nest for the next two years during the breeding season. Monthly (March, April, May, June) nest inspection should occur, beginning March 1 and ending June 30. This will cover the most critical period (courtship, nest building/repair, egg laying and incubation) and the latter part of the moderately critical period (one month after hatching). If no nesting activity is observed on the nest, it is reasonable to assume the nest is not being used for breeding. However, the tree maybe used for perching and this must be differentiated from nesting.
- Confirm whether there are any alternate nests within the 400 to 800 m. nest area and if they are active. This should be done at least once (mid-May) for the next two years. The most efficient and effective way to accomplish this is with an aerial survey.

12.0 Proposed Development and Recommendations

It is not possible to predict with 100% certainty how Bald Eagles' will react to human activity and developments, but it is almost certain this eagle pair (or any other) would abandon the Pioneer Park nest tree if the proposed development proceeds as planned. This does not necessarily mean Bald Eagles would abandon Reedy Bay entirely. As critical as the nest tree is, ready access to a forage area like Reedy Bay is equally as important. Also, there are known eagle nests in the general vicinity this pair maybe using for nesting and there are a number of super canopy white pines nearby in Regina Bay or across the highway in Reedy Bay suitable for nesting.

If, however, the intent is to preserve and maintain Bald Eagle nesting and perching habitat presently used in Pioneer Park, then a precautionary approach should be taken. A two-year monitoring program will be required to determine and document whether Bald Eagles have abandoned the Pioneer Park nest or if this is a temporary absence. Secondly, the monitoring should verify whether there are alternate nests within a 400 to 800 m. radius of the Pioneer Park nest.

If the Pioneer Park Bald Eagles return within the next two breeding seasons, no development or site alteration should occur within 100 m. of the Pioneer Park nest tree. This would be consistent with direction provided in the Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales (2010 b) and the Provincial Planning Statement (2024) for protecting Significant Wildlife Habitat.

If Bald Eagles use an alternate nest within the 400 to 800 m. nest area, the alternate nest is now the new primary nest. The Pioneer Park nest would be considered an alternate nest but the area is still classified as Significant Wildlife Habitat. Other than protecting the alternate nest and considering it part of the Significant Wildlife Habitat, OMNR provides no specific guidance regarding alternate nests (L. Darby, NW Regional Planning Ecologist pers. comm.).

However, if Bald Eagles do not return to the Pioneer Park nest or an alternative nest within 400 to 800 m. of the primary nest in the next two breeding seasons, then the nest and nesting area is classified as inactive and no longer considered Significant Wildlife Habitat. The development could proceed as proposed with no timing restrictions.

OMNR suggests proponents consider implementing the mitigation measures described in the Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales (2010 b) and Bald Eagle Habitat Management Guidelines (1987) for inactive or abandon nests. From a development perspective, it would be extremely challenging to apply these and highly unlikely any eagle would nest in Pioneer Park in the future if the development proceeds as proposed. However, if mitigation measures previously described were followed: protect all mature white pine (alive or dead); maintain a 20 m. buffer between the development and water; maintain as many mature trees as possible including the bur oak/iron wood, black ash and northern white cedar stands; there is the possibility Bald Eagles would continue to use Pioneer Park and Reedy Bay for perching and foraging.

In the interim, that is until the nest is classified as inactive or active, should any development proceed? It is reasonable to assume the Pioneer Park Bald Eagles are accustomed to human activity and development outside the 100 m. primary zone. As discussed previously, there are a number of residences and Provincial

Highway 71 located within the secondary (200 m.) and tertiary (400 to 800 m.) zones.

Based on the information provided by the developer (Figure 5), Phase 1, six attached units are to be located just outside the 100 m. primary zone.

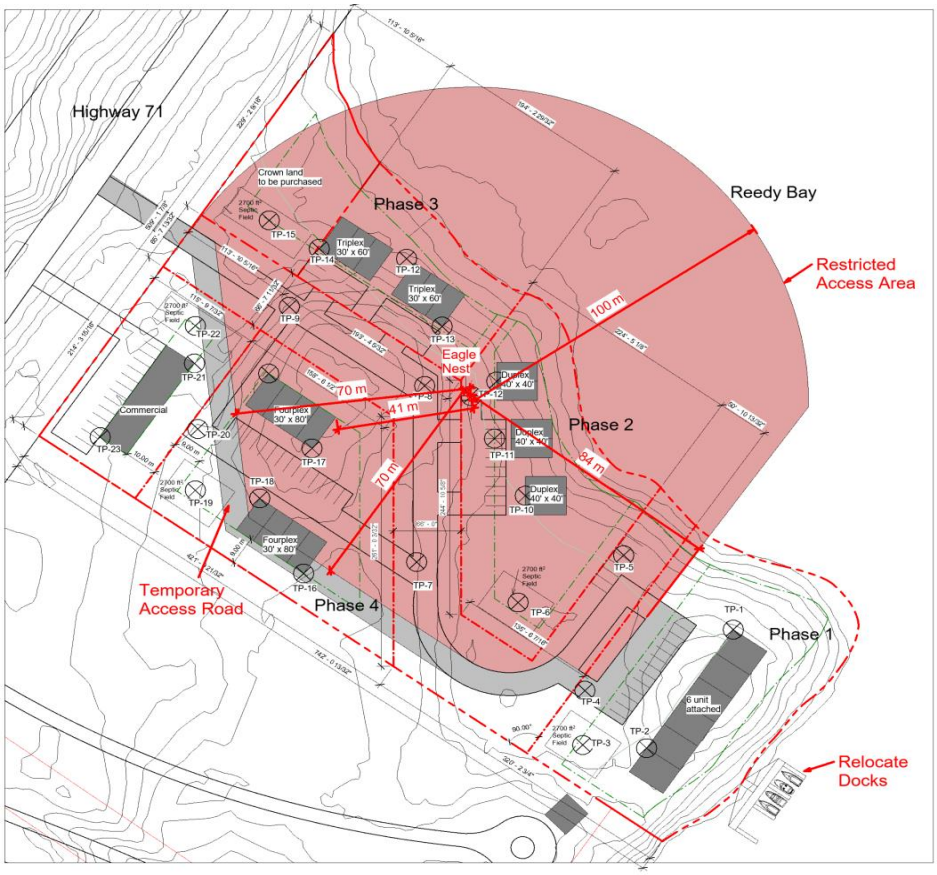


Figure 6. Proposed development within and outside the 100 m. primary zone.

Ordinarily, restricting construction to the non-critical period (September 1 to February 28) and requiring all materials and equipment be barged or transported by ice road (i.e., no access within the primary zone) would pose a relatively low risk to the Bald Eagles. However, a significant amount of clearing and disturbances occurred this summer establishing trails and test pits adjacent to the nest tree and within the primary zone. It is unknown how the Bald Eagles will react to the site alterations and if additional activity, such as the Phase 1 construction may cause them to abandon Pioneer Park for nesting. Until the eagles have had an opportunity to adjust to the site alterations, no construction should occur this fall (2024) or winter (2025).

Proceeding with Phase 1 development before it is determined whether the nest is inactive or active also poses a risk for the developer. Eventually a road will be required to access the Phase 1 Units and the developer indicated 70 m. from the nest tree is the furthest it could be built. If the eagles return to nest in Pioneer Park, the road would not conform to activities or alterations allowed within the 100 m. primary zone. Residential vehicular traffic for six units would pose a high risk to the eagles. In this case, to protect nesting, Phase 1 should be water access only.

Mitigation Recommendations:

- The areas disturbed for trails and test pits should be allowed to revegetate naturally and no further site alterations occur within the 100 m. primary zone until the nest is classified as inactive.
- Phase 1, six-unit construction should not occur this fall/winter (2024/2025).
- The above recommendation could be reconsidered after the 2025 breeding season. If the Bald Eagles do not use the Pioneer Park nest in 2025, construction of Phase 1 six units maybe be possible in the non-critical period (September 1, 2025 to February 28, 2026). Materials should be barged or transported by ice road with no access through the 100 m. primary zone. However, if the birds return during the 2026 breeding season, the road required to access the residences would not be supported by OMNR's guidelines to protect Bald Eagle Significant Wildlife Habitat and the units should be water access only.
- **Recommended option – No development in Pioneer Park until the status, active or inactive of the Bald Eagle nest is determined.**

13.0 Conclusions and Summary of Recommendations

13.1 Reedy Bay

Reedy Bay is an important wetland (marsh) providing habitat for a diversity of fish and wildlife species; wild rice harvesting opportunities for Indigenous peoples; and drinking water for local residents.

To protect water quality in Reedy Bay for fish and wildlife, wild rice and drinking water the following is recommended:

- The proposed development's septic systems must be approved and inspected by the Ministry of Environment, Conservation and Parks (MECP) and/or the Northwestern Health Unit.
- Proponent develops and implements a sediment control plan during and after construction ensuring sediment does not enter Reedy and Regina Bays.
- There should be no direct discharge of untreated surface or stormwater from the proposed development's roads, parking lots, septic systems, residences, or landscaped areas into Reedy and Regina Bays.
- A minimum 20 m. vegetation buffer should be maintained between the development and the adjacent waters of Reedy and Regina Bays.
- To alleviate the concerns regarding boat gas/oil contamination and increased boat traffic stirring up sediments in Reedy Bay, the proposed docking facility should be located in Regina Bay.
- Ministry of Environment, Conservation and Parks (MECP) should be consulted to develop a water quality monitoring program to determine pre and post development water quality and best practices regarding storm water management. If there is a decrease in water quality attributed to the development, then appropriate mitigations measures should be implemented.

To ensure no loss of fish and wildlife habitat and wild rice in Reedy Bay:

- No developments (e.g., docks, boathouses, boat launch etc.) associated with the proposed development should occur in Reedy Bay.
- No alterations (e.g., dredging, removal of aquatic vegetation) should occur in Reedy Bay.

13.2 Pioneer Park

Pioneer Park is a small area with a relatively intact forest and ground vegetation cover including mature white pines and distinct bur oak/iron wood, black ash and northern white cedar stands. The area provides habitat for a variety of birds and small mammals. The proposed development will remove and replace the existing forest cover with residences, roads, parking lots, septic systems and landscaped areas.

To maintain some natural habitat for birds and small mammals the following is recommended:

- Preserve all mature white pines (living and dead).
- Protect existing bur oak/iron wood, black ash and northern white cedar stands and incorporate them into future landscaping plans.
- Maintain a 20 m. minimum vegetation buffer between the development and Reedy and Regina Bays.

To protect migratory bird nesting in Pioneer Park:

- No site alterations or construction should occur during the general nesting period from mid-April to the end of August.

OR

- If nests are encountered during site clearing or construction the nest tree must be protected with appropriate setbacks and timing restrictions (OMNR 2010 b).

13.3 Pioneer Park Bald Eagle Nest

The most important wildlife feature in Pioneer Park is the Bald Eagle nest. A Bald Eagle nest is considered Significant Wildlife Habitat and the Provincial Planning Statement (2024) indicates:

"Development and site alterations shall not be permitted in significant wildlife habitat unless it has been demonstrated there will be no negative impacts on the natural features or ecological functions."

It is almost certain; Bald Eagles will abandon the Pioneer Park nest if the development proceeds as proposed. They may however, establish a new nest in the general vicinity and continue to forage in Reedy Bay.

If the development proceeds as planned it is recommended:

- The Pioneer Park white pine and nest must be protected (Fish and Wildlife Conservation Act 1997) and maintain a 20 m. vegetation buffer around the nest tree (OMNR 2010 b).
- Other mature white pines adjacent to Regina Bay (alive or dead) should be preserved and protected with a 20 m. vegetation buffer.
- Maintain a 20 m. minimum vegetation buffer between the development and Reedy and Regina Bays.
- Protect existing bur oak/iron wood, black ash and northern white cedar stands.

Bald Eagles may abandon the Pioneer Park nest, but these mitigation measures may encourage the eagles to continue perching and foraging in Reedy Bay.

The Pioneer Park nest was not used this year for breeding. It is unknown whether the Bald Eagles have permanently abandoned the Pioneer Park nest or are using an alternate nest and may return to the Pioneer Park nest in the future. If the objective is to maintain nesting and perching in Pioneer Park, a precautionary approach is recommended. This would include:

- Monitoring the Pioneer Park nest for the two breeding seasons (2025, 2026) to determine and document whether the nest is active or inactive.

- Confirm whether there are any active alternate nests within the Significant Wildlife Habitat zone defined as the 400 to 800 m. area around the Pioneer Park nest.

13.3.1 Possible Scenarios

1. If Bald Eagles return within the next two breeding seasons (2025, 2026) to nest in Pioneer Park, then no development or site alteration should occur within 100 m. of the Pioneer Park nest tree to be consistent with the Provincial Planning Statement (2024)

2. If an alternate nest within 400 to 800 m. of the Pioneer Park nest is used in the next two breeding seasons (2025, 2026), the area is still considered Significant Wildlife Habitat. However, the new nest is now the primary nest while the Pioneer Park nest is considered an alternate nest. This would confirm, Bald Eagles have not abandoned the Significant Wildlife Habitat and are still using the area for nesting and foraging. In this scenario, it is highly unlikely Bald Eagles would use the Pioneer Park alternate nest in the future, if the development proceeded as planned. To maintain Pioneer Park as perching and foraging habitat, it is recommended:

- The Pioneer Park alternate nest tree must be protected (Fish and Wildlife Conservation Act 1997) and maintain a 20 m. vegetation buffer around the nest tree (OMNR 2010 b).
- Other mature white pines adjacent to Regina Bay (alive or dead) should be preserved and protected with a 20 m. vegetation buffer.
- Maintain a 20 m. minimum vegetation buffer between the development and Reedy and Regina Bays.
- Protect existing bur oak/iron wood, black ash and northern white cedar stands.

3. If in the next two breeding seasons (2025, 2026), Bald Eagles do not nest in Pioneer Park or an alternate nest within the 400 to 800 m. of the primary nest, then the nest and nesting area is classified as inactive and no longer

considered Significant Wildlife Habitat. The development could be proceed as proposed with no timing restrictions. However, to maintain Pioneer Park as perching and foraging habitat it is recommended:

- The Pioneer Park white pine and nest must be protected (Fish and Wildlife Conservation Act 1997) and maintain a 20 m. vegetation buffer around the nest tree (OMNR 2010 b).
- Other mature white pines adjacent to Regina Bay (alive or dead) should be preserved and protected with a 20 m. vegetation buffer.
- Maintain a 20 m. minimum vegetation buffer between the development and Reedy and Regina Bays.
- Protect existing bur oak/iron wood, black ash and northern white cedar stands.

13.3.2 Recommended Option(s):

- Until it is determined and documented the Pioneer Park nest is active or inactive, no site alteration or development should occur within the 100 m. primary zone surrounding the Pioneer Park nest tree.
- The Bald Eagles should be given time to adjust to the significant clearing and disturbances that occurred adjacent to the nest tree and within the 100 m. primary zone this summer. No development (e.g., Phase 1) or site alterations should occur outside the primary zone this fall (2024) or winter (2025).
- The above recommendation could be reconsidered if Bald Eagles do not nest in Pioneer Park in 2025. If so, construction should be restricted to the non-critical period September 1, 2025 to February 28, 2026. No access roads should be built within the 100 m. primary zone until the nest is classified as inactive (e.g., after the 2026 breeding season).

14.0 References

Armstrong, T. 2014. Management Plan for the Bald Eagle (*Haliaeetusa leucocephalus*) in Ontario. Ontario Management Plan Series. Prepared for Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario, vii 53 pp.

Asplund, T.R. 2000. The effects of motorized watercraft on aquatic ecosystems. Wisconsin Department of Natural Resources. Publ. – 55 - 948-00. 21 pp.

Bellhouse, T. J. and B. J. Naylor. 1997. Habitat relationships of wildlife in Central Ontario. OMNR SCS Tech. Report. No. 53.

Broley, C. L. 1947. Migration and nesting of Florida Bald Eagles. Wilson Bulletin 59: 3-20.

Brownell, V. R., and M. J. Oldham. 1984. Status report on Bald Eagle in Canada, *Haliaeetus leucocephalus.* Prepared for the OMNR and the Committee on the Status of Endangered Wildlife in Canada. 82 pp.

Buehler, D. A. 2000. Bald Eagle (*Haliaeetus leucocephalus*) in Poole, A. and F. Gill, eds. The Birds of North America, No. 506. Philadelphia, PA: The Birds of North America, Inc. 39 pp.

Carolinian. Canada. 2000. Guidelines for determining setbacks and buffers. In draft Guide for Determination of Setbacks and Buffers pp 27-33.

Castelle, A. J., A. W. Johnson and C. Conolly. 1994. Wetland and stream buffers size requirements: a review. Journal of Environmental Quality 23: 878-882.

Caton, E. L., B. R. McClelland, D. A. Patterson, and R. E. Yates. 1992. Characteristics of foraging perches used by breeding Bald Eagles in Montana. Wilson Bulletin 104: 136-142. Ontario Species at Risk Evaluation Report for Bald Eagle.

Committee for the Status of Species at risk in Ontario. 2022. Ontario Species at Risk Evaluation Report for Bald Eagle.

Desbonnet et al. 1995. Development of coastal vegetated buffer programs. Coastal Management 23 (2) 91-109.

Dunstan, T. C. and J. F. Harper. 1975. Food habits of Bald Eagles in northcentral Minnesota. Journal of Wildlife Management 39(1): 140-143.

Environment Canada, 2001a. Bald Eagle populations in the Great Lakes Region. Back from the brink. Great Lakes Fact Sheet, Environment Canada, Downsview, Ontario. 25 pp.

Environment and Climate Change Canada, 2024. Avoiding harm to migratory birds; Overview of nesting periods; nesting zones and periods website

Elliot, K. H., J. Duff, S. L. Lee, P. Mineau and J. E. Elliot. 2006. Foraging ecology of Bald Eagles at an urban landfill. Wilson Journal of Ornithology 118(3): 380-390.

Ewin, P. J. and R. A. Andreas. 1995. The diet of Bald Eagles (*Haliaeetus leucocephalus*) wintering in the lower Great Lakes Basin, 1987-1995. Canadian Field-Naturalist 109(4): 418-425.

Fisher, D. L. 1985. Piracy behaviour of wintering Bald Eagles. Condor 87: 256-251.
Grier, J. W., T. Armstrong, P. Hunter, S. Lockhart and B. Ranta. 2002. Report on the status of Bald Eagles in Ontario Draft. Prepared for the Committee on the Status of Species at Risk in Ontario. OMNR. 97 pp.

Hall-Armstrong, J., A. G. Harris, R. F. Franklin-Foster. 1996. Fish use of wetlands in Ontario. OMNR Northwest Science and Technology. 55 pp.

James, R. D. 1984a. Habitat management guidelines for Ontario's Forest nesting accipiters, buteos and eagles. Prepared for OMNR 23 pp.

Johnsgard, P. A. 1990. Hawks, Eagles, and Falcons of North America. Smithsonian Institution Press, Washington and London. 403 pp.

Kennedy, E. and I. McTaggart-Cowan. 1998. Sixteen years with a Bald Eagle's (*Haliaeetus leucocephalus*) nest. Canadian Field-Naturalist 112: 704-706.

Milgram, J. 2023. Wil;d rice and the Ojibwe. MNOPEDIA. 2 pp.

Official Plan for the Township of Sioux Narrows-Nestor Falls. 2014. 66 pp.

Ontario, 2023. Bur Oak, Iron Wood, Black Ash, Norther White Cedar. Ontario.ca.

Ontario Ministry of Environment, Conservation and Parks. 2003. Stormwater Management Planning and Design.

Ontario Ministry of Municipal Affairs and Planning, 2024. Provincial Planning Statement. ISBN 978-1-4868-8225-0. 60 pp.

Ontario Ministry of Natural Resources (OMNR). 1987. Bald Eagle habitat management guidelines. 15 pp.

OMNR. 2010 a. Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second edition. Toronto. 248 pp.

OMNR 2010 b. Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales. Toronto. ISBN 98-1-4435-3268. 223 pp.

OMNR 2010 c. Clearwater Bay Restricted Area Order. 12 pp.

OMNR 2010 d. Shoal Lake Restricted Area Order. 15 pp.

OMNR. 2014. Significant Wildlife Support Mitigation Support Tool. 533 pp.

Ontario Nature. 2024. The Ontario Reptile and Amphibian Atlas 2009-2019. Ontario Nature, Toronto. 443 pp.

Peck, C. K. and R. D. James 1999. Breeding Birds of Ontario: Nidiology and Distribution. Vol.1: Nonpasserines (additions and revisions). Ontario Birds 17(3): 105-123.

Stocek, R. F. and P. A. Pearce. 1981. Status and breeding success of New Brunswick Bald Eagles. Canadian Field-Naturalist 95: 428-433.

Strass, K. 2009. Manoomin: Wild rice harvesting of the Ojibwe and its link to their Worldview. UNDERC. 20 pp.

Szuba, K. B. and Naylor. 1998. Forest Raptors and their nests in Central Ontario. A Guide to Stick Nests and Their Users. SCSS Field Guide FG-03. OMNR, North Bay, Ontario. 79 pp.

15.0 Appendix 1. Shoreline Assessment

Site 1

Site 1 Riparian

Site 1 Underwater, single layer of rock

Riparian – bedrock with steep slope, shallow soil, moderate ground cover with mature white pines on backshore.

Shoreline – depths @ shore - 0.3 m.; @ 5 m. – 1.0 m.; @ 10 m. – 1.2 m. Substrate – narrow band of rock rubble near shore with patches of gravel on bedrock; single layer of rock material with sand and detritus between interstitial spaces; transitions to soft mud bottom with dense submergent and sparse floating aquatic vegetation.

Recommendation – good wind and wave exposure, but substrate is not suitable for walleye, white sucker, or lake whitefish spawning; no other fish habitat concerns; suitable for shoreline development e.g., docks.

Site 2

Site 2 Riparian

Site 2 Dense submergent; sparse floating

Riparian – straight walled bedrock at water's edge, beyond here steep slope with shallow soil, sparse ground cover and oak/iron wood stand on backshore.

Shoreline – depths @ shore - < 0.5 m.; @ 5 m. – 1.0 m.; @ 10 m. – 2.1 m.
Substrate - 1 m. band of rock rubble on bedrock; single layer of rock material with sand and detritus between interstitial spaces; quickly transitions to mud bottom with dense submergent and sparse floating aquatic vegetation.

Recommendation - good wind and wave exposure, but substrate is not suitable for walleye, white sucker, or lake whitefish spawning; no other fish habitat concerns; suitable for shoreline development e.g., docks.

Site 3a

Site 3a Riparian

Site 3a Underwater single layer of rock

Riparian – bedrock moderate slope at water's edge, steep slope in backshore, sparse soil and vegetation cover, backshore oak/iron wood stand.

Shoreline – depths @ shore - < 1 m.; @ 5 m. – 2.1 m.; @ 10 m. – 3.0 m. Substrate – single layer of rock/rubble at shore, interstitial spaces filled with detritus; 10 m. from shore the bottom is hard but with sufficient mud for submergent vegetation to grow; at 10 m. the bottom is mud.

Recommendation - good wind and wave exposure, but substrate is not suitable for walleye, white sucker, or lake whitefish spawning; no other fish habitat concerns; suitable for shoreline development e.g., docks.

Site 3b

Site 3b Riparian

Site 3b Bedrock with boulders

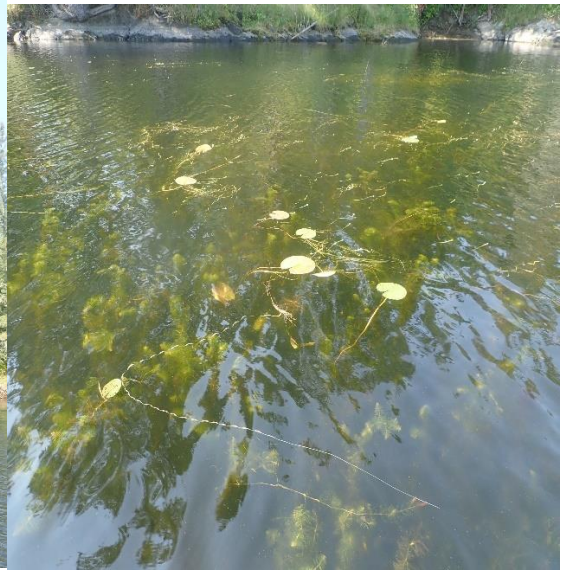
Riparian – bedrock with moderate slope at water's edge, steep slope in backshore, initially sparse soil and vegetation cover, but increases as approach site 4.

Shoreline – depths @ shore - < 1.0 m.; @ 5 m. – 2.4 m.; @ 10 m. – 2.4 m.
Substrate – initially bedrock at shore but changes to bedrock with boulders near Site 4, beyond the shore the bottom transitions quickly to mud with dense submergent and some floating aquatic vegetation.

Recommendation – Exposure and substrate are not suitable for walleye, white sucker, or lake whitefish spawning; no other fish habitat concerns; from a fish habitat perspective Site 3b is suitable for shoreline development e.g., docks. However, docks would poise a navigation hazard.

Site 4

Site 4 Riparian



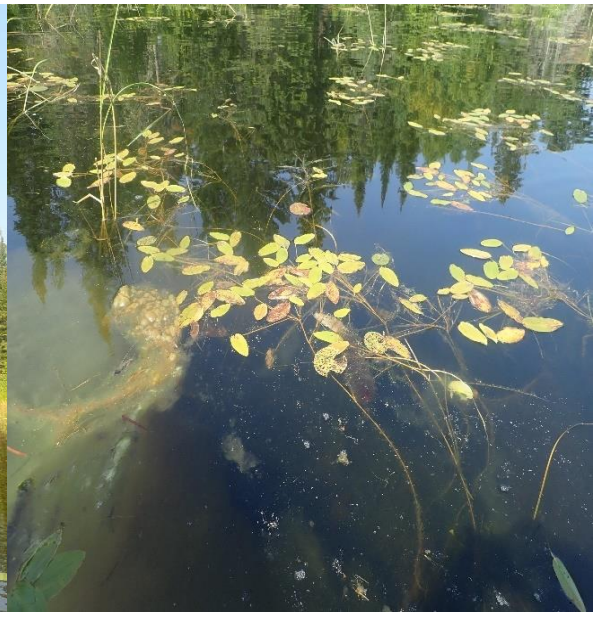
Site 4 Dense submergent, sparse floating

Riparian – bedrock with moderate slope, covered with a thicker soil mantle, 100% tree and undergrowth cover.

Shoreline – depths @ shore - < 1.0 m.; @ 5 m. – 1.8 m.; @ 10 m. – 1.2 m.
Substrate – bedrock at water/shore interface, transitions quickly into mud with dense submergent and sparse floating aquatic vegetation.

Recommendation – The substrate and aquatic vegetation is not suitable for fish spawning and there are no other fish habitat concerns. From a fish habitat perspective Site 4 would be suitable for shoreline development e.g., docks. However, there are concerns regarding fuel/oil contamination and it is within the Bald Eagle 100 m. primary zone; no docks should be built here.

Site 5



Site 5 Riparian

Site 5 dense submergent and floating

Riparian – low slope, deeper soil depth, 100% vegetation to shore, mix of herbaceous plants, shrubs and trees.

Shoreline – depth @ shore - < 0.5 m.; @ 5 m. – 0.6 m.; @ 10 m. – 0.8 m. Substrate – bedrock at water interface, transitions quickly into mud near shore and @ 5 and 10 m., dense submergent and floating aquatic vegetation, beginning of emergent vegetation.

Recommendation - suitable habitat for largemouth bass, black crappie, northern pike, muskellunge and yellow perch spawning, nursery and feeding. No shoreline development or alteration should occur here.

Site 6

Site 6 Riparian Site 6 Dense submergent, floating, emergent

Riparian – Pioneer Park Island/peninsular depending on water depth, no slope, 100% vegetation cover with oak present.

Shoreline – depth near shore < 0.6 m.; @ periphery of emergent vegetation 1.5 m. Substrate mud with dense submergent, floating and emergent aquatic vegetation.

Recommendation - suitable habitat for largemouth bass, black crappie, northern pike, muskellunge and yellow perch spawning, nursery and feeding. No shoreline development or alteration should occur here.

Site 7

Site 7 Riparian

Site 7 Dense submergent, floating, emergent

Riparian – low slope, 100% tree cover

Shoreline – depth @ shore not possible; @ in middle of aquatic vegetation – 0.6 m.; in open channel - 1.5 m. Substrate mud with dense submergent, floating and emergent aquatic vegetation.

Recommendation - suitable habitat for largemouth bass, black crappie, northern pike, muskellunge and yellow perch spawning, nursery and feeding. No shoreline development or alteration should occur here.