ARCHAEOLOGY | HERITAGE | OUTREACH | EDUCATION

Marine Archaeological Assessment
Background Research and In-Water Assessment
Kashwakamak Lake Dam
Intersection of Kashwakamak Lake and Main Channel of Mississippi River
Township of North Frontenac
County of Frontenac

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Licensed under
S. Janusas
Marine Licence #2023-29
ARA File #2023-0087
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Original Report

The following has been adapted from the Assembly of First Nations and demonstrates the importance of water for Indigenous communities (https://www.afn.ca/honoring-water/):

Archaeological Research Associates recognizes the importance of water for Indigenous communities in its many elements including but not limited to the shaping of the land, the rivers, lakes, ice and oceans. We recognize and acknowledge that the Indigenous peoples of North America have a special relationship with water, built on their subsistence ways of life that extends back thousands of years. Traditional activities depend on water for transportation, drinking, cleaning, purification, and provides habitat for the plants and animals gathered as medicines and foods.

EXECUTIVE SUMMARY

McIntosh Perry Consulting Engineers (McIntosh Perry) and the Mississippi Valley Conservation Authority (MVCA) retained the services of Archaeological Research Associates (ARA) to conduct the marine archaeological background research (equivalent of land-based Stage 1 archaeological assessment) and the in-water marine assessment (equivalent of land-based Stage 2 archaeological assessment) for the Kashwakamak Lake Dam replacement project. The dam is located at the intersection of Kashwakamak Lake and the main channel of the Mississippi River in North Frontenac Township, Frontenac County. The study area extends 20 metres downstream of the dam face and 20 metres upstream of the dam face.

Permission to access the study area and to conduct all activities associated with the background research and a property visit was provided by the proponent. The archaeological assessment was triggered by a Class Environmental Assessment Act.

Background research indicated that there were no registered archaeological sites within one kilometer of the study area. A commemorative plaque located at Ardoch commemorates the struggle back in the early 1980's to preserve manòmin (wild rice) from commercial harvesters (Ardoch First Nation Website, http://www.aafna.ca/). This may relate indirectly to the study area.

The current dam consists of two structures: the main or main control dam, and a secondary saddle dam (overflow dam). The two structures are separated by an earth island. The main dam consists of two bulkhead walls and three concrete piers forming two sluiceways and a broad crested concrete weir. The dam has had major repairs undertaken to address structural and seepage issues and plans are to replace the dam. A scour hole exists downstream at the face of the dam, and reaches a depth of 1.8m maximum.

The immediate reason for the construction of a dam at the exit of the lake into the Mississippi River was to ensure an adequate water supply for downstream mills, particularly for hydro-electric power development. The dam was constructed in 1910.

The proponents have undertaken Indigenous engagement. Indigenous engagement was also conducted on behalf of the client by ARA for this marine archaeological assessment.

The marine archaeological assessment was conducted under license 2023-29 (held by Scarlett Janusas) and took place on September 11th under ideal conditions. Visibility was to the bottom in all areas (upstream and downstream). A snorkel survey was undertaken even with the sluice gates closed, there was deep enough water in the study area to require snorkel survey. The bottom for both upstream and downstream was bedrock with scattering of trees (unmodified) and loose rock. Snorkel survey was conducted in intervals between two and three metres. The extreme shallow areas were assessed by personnel along the shoreline. Wooden notched logs from the previous log boom were located along both edges of the upstream study area. They were located outside the study area proper. They were replaced in 2006 by the current safety boom, and it is generally thought that the logs date from between 20 – 40 years ago and are therefore not considered to have

heritage significance or value. No other artifacts, other than modern refuse (broken glass) was located in the study area.

Based upon the background research of past and present conditions, the following is recommended:

1. That the study area be considered free of archaeological concerns;
2. Compliance legislation must be adhered to in the event of discovery of deeply buried cultural material or features; and
3. The Algonquins of Pikwakanagan First Nation (AOPFN) should be contacted if any artifacts of Indigenous interest or human remains are encountered during the development of the subject property. A procedure should be developed between MVCA and AOPFN in the event that there is a disagreement on significance or potential importance of sites.

This archaeological assessment has been conducted under the 2011 *Standards and Guidelines for Consultant Archaeologists* reporting recommendations and using best practices of ARA (MCM 2011).

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PERSONNEL

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Report Writer: S. Janusas
Report Edit & Review: Alexis Dunlop (#P1146)

1.0 PROJECT CONTEXT

1.1 Development Context

The proponent retained the services of Archaeological Services Inc. (ARA) to conduct a marine archaeological assessment - background research and an in-water marine archaeological assessment for the Kashwakamak Lake Dam Class Environmental Assessment (Class EA). For the purposes of this report the property will hereafter be referred to as the "study area".

The study area is located on either side of the existing dam, Kashwakamak Lake to the west and the main channel of the Mississippi River to the east in North Frontenac Township, Frontenac County. Figure 1 provides general location details for the study area, and Table 1 provides the UTM coordinates for the study area. Figure 2 illustrates land and water ownership.

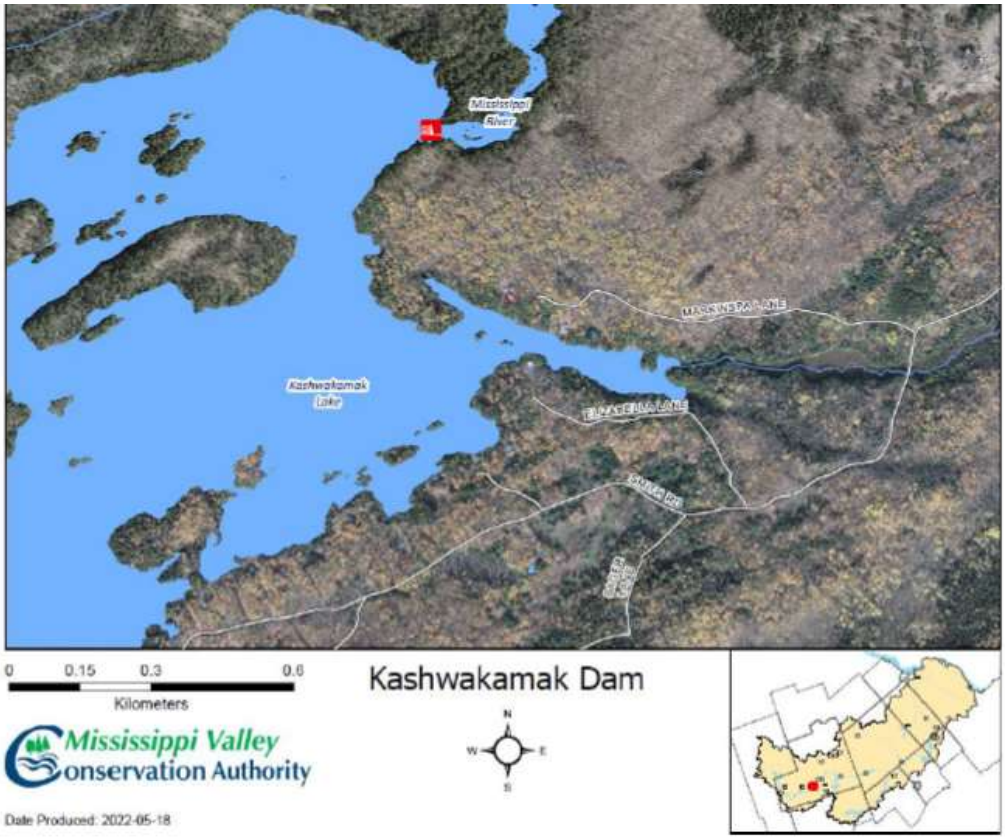

Figure 1: Regional Location of Study Area

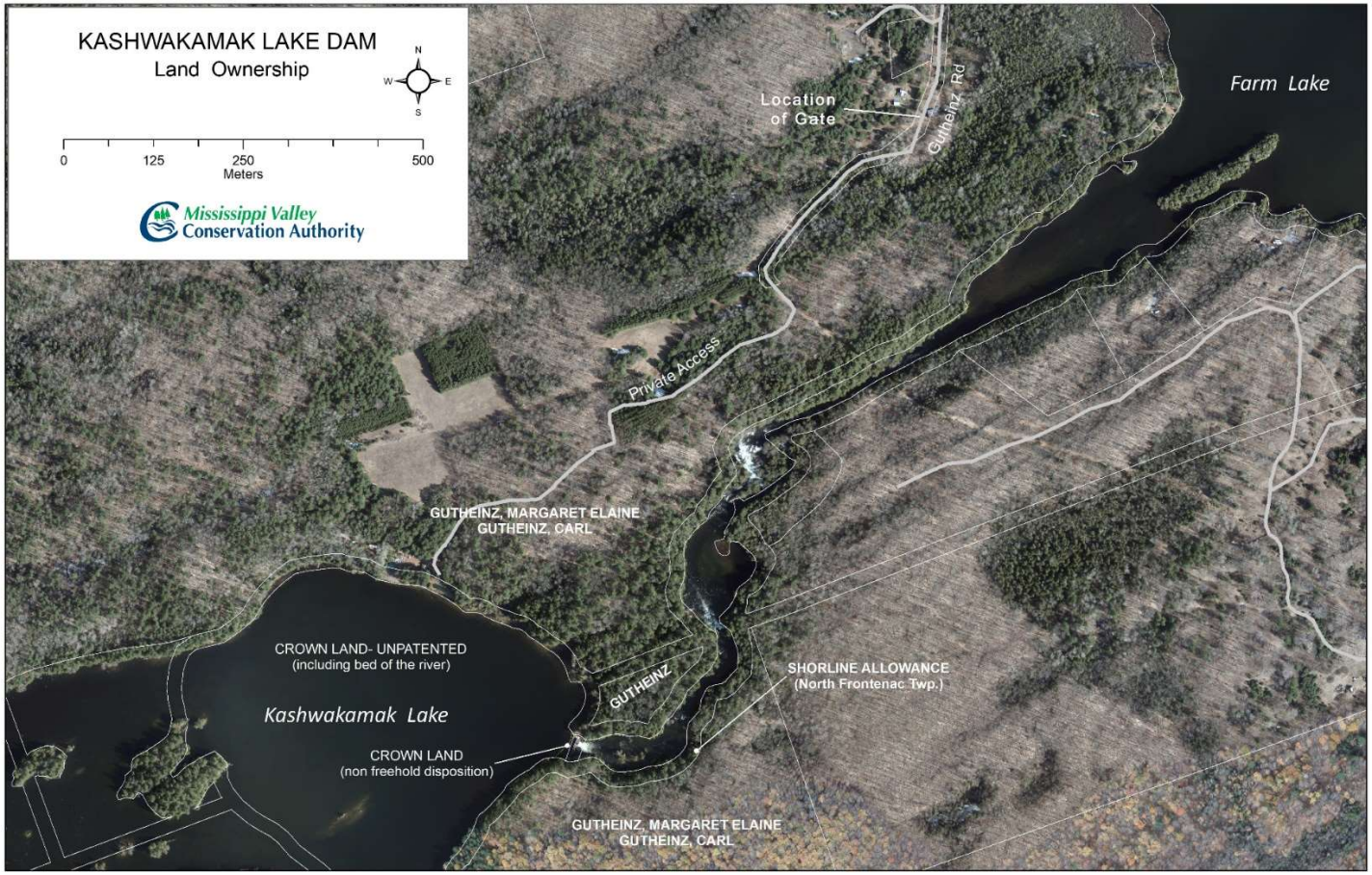

Figure 2: Land and Water Ownership

Table 1: Project UTM Coordinates

Point Location	UTM Zone	Easting	Northing
NW corner	18	345327.12	4972872.20
NE corner	18	345367.02	4972857.98
SE corner	18	345356.90	4972840.21
SE corner	18	345316.40	4972844.28

Figures 3 – 5 illustrate the general arrangement of the dam and the limits of the marine archaeological assessment.

Permission to access the study area and to conduct all activities associated with the marine archaeological assessment was provided by the proponent. The Kashwakamak Lake Dam is owned/managed by the MVCA. The land ownership figure (Figure 2) shows that the lake bottom is owned by the Crown. The study area consists of an area of 20 metres on the upstream and the downstream of the Kashwakamak Lake Dam encompassing approximately .07 hectares.

The archaeological assessment was triggered by the Environmental Assessment Act, 2012, and is being conducted as part of a Class Environmental Assessment, in accordance with Conservation Ontario's Class Environmental Assessment for Remedial Flood and Erosion Control Projects. McIntosh Perry is acting on behalf of the MVCA in this regard.

The Ministry of Citizenship and Multiculturalism (MCM) does not have Standards and Guidelines specific to marine archaeology. Therefore, this archaeological assessment has been conducted under the 2011 Standards and Guidelines for Consultant Archaeologists (MCM 2011) and best practices formed by 40 plus years of experience by ARA.

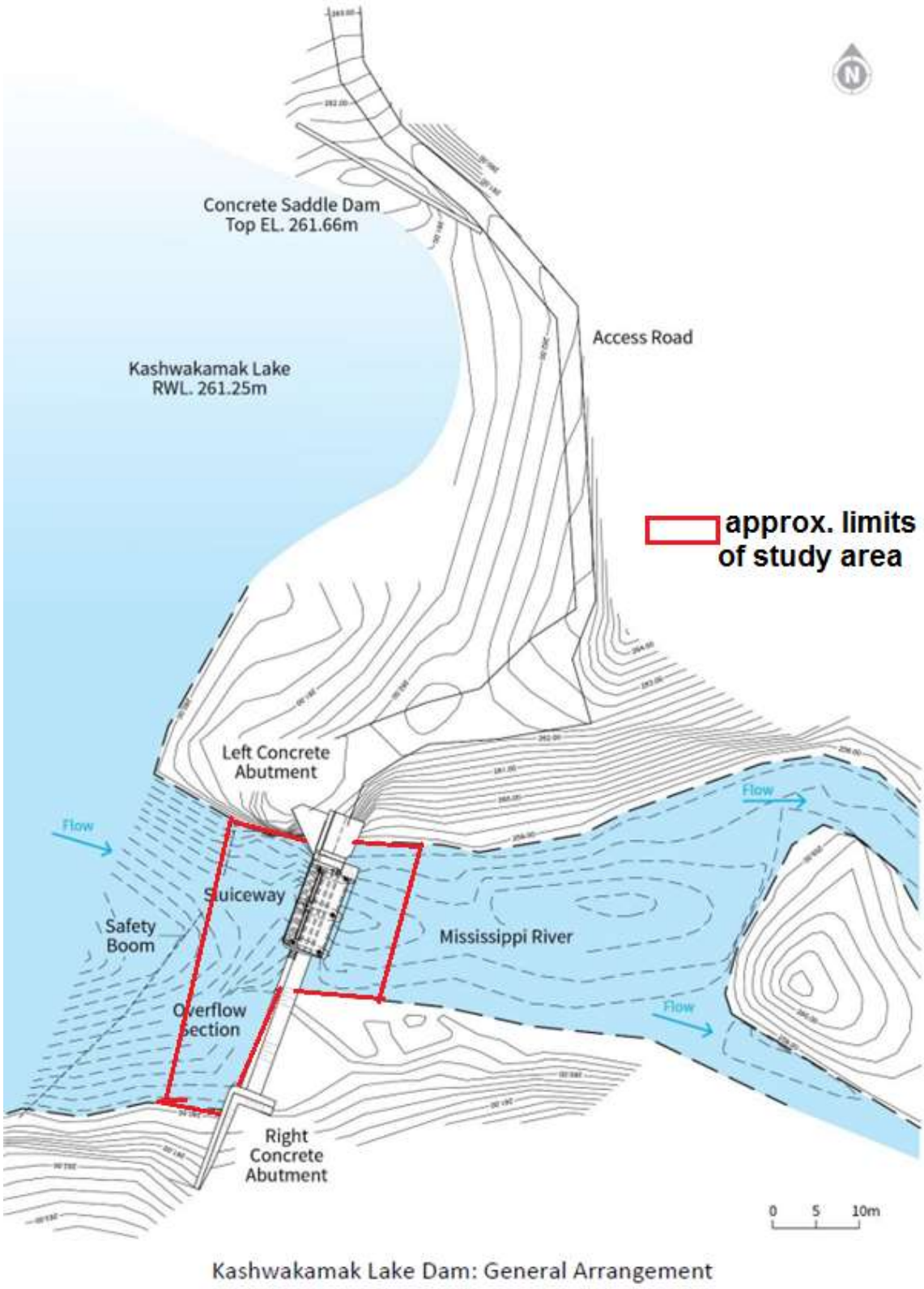

Figure 3: General Arrangement of the Dam and Study Area

Figure 4: MVCA Drone Photo (07/19/2023)

1.2 Description of the Project

The project consists of a Class Environmental Assessment (Class EA) for the Kashwakamak Lake Dam located in the Township of North Frontenac on the main channel of the Mississippi River. The Kashwakamak Lake Dam was built more than 100 years ago and is reaching the end of its useful lifespan. The deteriorating condition of the dam necessitates that a decision be made on whether to decommission, rehabilitate or replace the existing dam within the next five years.

The current dam consists of two structures: the main or main control dam, and a secondary saddle dam (overflow dam). The two structures are separated by an earth island. The main dam consists of two bulkhead walls and three concrete piers forming two sluiceways and a broad crested concrete weir. The dam has had major repairs undertaken to address structural and seepage issues (MVCA 2023).

Image 1: Main control dam (MVCA 2023)

Mississippi Valley Conservation Authority
Kashwakamak Lake Dam Replacement

Request for Proposals
January 2023

View of the overflow weir.

Image 2: Saddle Dam (MVCA 2023)

Upstream view of control structure and overflow weir.

Image 3: Upstream View of Main Dam (MVCA 2023)

1.3 Historical Context

1.3.1 Indigenous History

The following is from MVCA 2019 Background Two Report – People and Property:

"Anishinaabe peoples were the first to inhabit the Mississippi River Watershed and surrounding watersheds. Historical significant places in the watershed continue to hold sacred importance for Indigenous communities. The early Indigenous presence is marked by an extensive collection of pictographs on the face of Mazinaw Rock. It represents the largest visible collection of pictographs in Ontario. The only known concentration of indigenous habitation and camping sites in the watershed is also found at Mazinaw Lake. These, and finds near Crotch Lake, date back to the Middle and late Woodland Periods (ca. 1000 B.C. to the Historic Period). The Mazinaw sites appear to have also been occupied from the Middle Woodland to Historic Fur Trade periods.

Older artifacts (e.g. spear points) dating back to the Laurentian Archaic period (ca. 5000 B.C. to 1000 B.C.) have been found in the Dalhousie Lake area. The Laurentian people represent the first substantial population of hunters and fishermen to live in Southern Ontario and their way of life was to have a vital impact upon subsequent events.

There are other less extensive findings from the Crotch Lake and Dalhousie Lake areas. The scarcity of findings elsewhere suggests that the central and upper watershed was not a major travel route during those times. It is also thought that archaeological features may have been destroyed or covered over with the raising of water levels throughout parts of the river system.

The arrival of Europeans severely disrupted the life of indigenous peoples, as settlers overtook much of the land and resources" (MVCA 2019: 3).

1.3.2 European Colonization

"European settlers generally arrived after the War of 1812 as part of a wartime strategy and government programs aimed at establishing the "Rideau Military Settlements". The first were mostly British soldiers from disbanded regiments who settled around Perth. Two more waves of immigrants came from Scotland in 1820 and from Ireland in 1823. Those settled in and around the Village of Lanark. By 1830 Lanark County had a population of 10,000 largely concentrated in the eastern townships. The population of the western section was considered to have been 'not established' because of the unsuitability of the Canadian Shield to support agriculture.

The continued settlement of the watershed largely centered on the resources provided by the Mississippi River system. From 1820 on the lumber trade opened up large parts of the watershed. Dams were built in the upper (southwest) watershed to raise the water levels enough to float timber downstream. Sawmills, grist mills, flour mills and timber slides were constructed along the waterways, and settlements such as Almonte, Appleton, Carleton Place, Blakeney, Lanark and Pakenham grew around them.

When there was enough soil and water for viable farming, land that had been cleared for lumber was put into agricultural use. Markets for agriculture products grew as towns increased in both number and size. Timber export reached its peak in the 1850's and subsequently declined, with farming then becoming the primary source of livelihood.

In the 1850's and 1860's the introduction of the railway improved accessibility of the area and stimulated some growth, especially in areas like Carleton Place and Almonte. Populations in the watersheds steadily increased until around the turn of the century, at which point it began to decline (MVCA Interim Watershed Plan 1983: 3-4).

The municipal structure of the Mississippi River Watershed dates back to the early 1800's. Parts of Beckwith, Drummond and Tay Valley Townships were among the first townships surveyed and settled between 1816 and 1818. The formation of the municipal wards to the north and west continued through the early 1860's. When the Mississippi Valley Conservation Authority was first formed in 1968, the Mississippi River Watershed included 24 separate municipalities" (MVCA 2019 Background Report Two – People and Property).

The study area and immediate environs was settled quite late according to the above information. Colonization modified the natural landscape, through logging, clearing of land for agriculture (not apparent in the study area), and building of dams, such as the current study dam to manipulate the flow of water for early industries. Potential exists for sites to exist in close proximity to shorelines of both lakes and rivers. The upper parts of the watershed (the study area) was used primarily for transport of logs.

1.3.3 Traditional Indigenous Land and Engagement

Indigenous engagement was undertaken by the proponent. Table 2 presents the list of all First Nations, Indigenous communities/organizations and Métis engaged by the proponent.

Table 2: List of First Nations, Indigenous Communities/Organizations, and Métis Engaged by Proponent

In Alphabetical Order
Alderville First Nation
Algonquins of Ontario
Algonquins of Pikwàkanagàn First Nation
Beausoleil First Nation
Chippewas of Georgina Island First Nation
Chippewas of Rama First Nation
Curve Lake First Nation
Hiawatha First Nation
Huron-Wendat Nation
Kawartha Nishnawbe First Nation
Métis Nation of Ontario
Mississaugas of Scugog Island First Nation
Mohawks of the Bay of Quinte

Table 3:
Table 3: List of First Nations, Indigenous Communities/Organizations, and Métis That Participated in Fieldwork

In Alphabetical Order
Algonquins of Ontario
Algonquins of Pikwàkanagàn First Nation

1.3.4 Canadian Heritage River

The Mississippi River is not a designated Canadian Heritage River (https://chrs.ca/en/rivers).

1.3.5 Marine History of the Study Area

One of the criteria for evaluating potential for possible Indigenous cultural remains in marine archaeology is the presence or nearby presence of rapids. There are two rapids, outside the study area, but potentially close enough to raise interest in the study area's archaeological potential. (Figure 5).

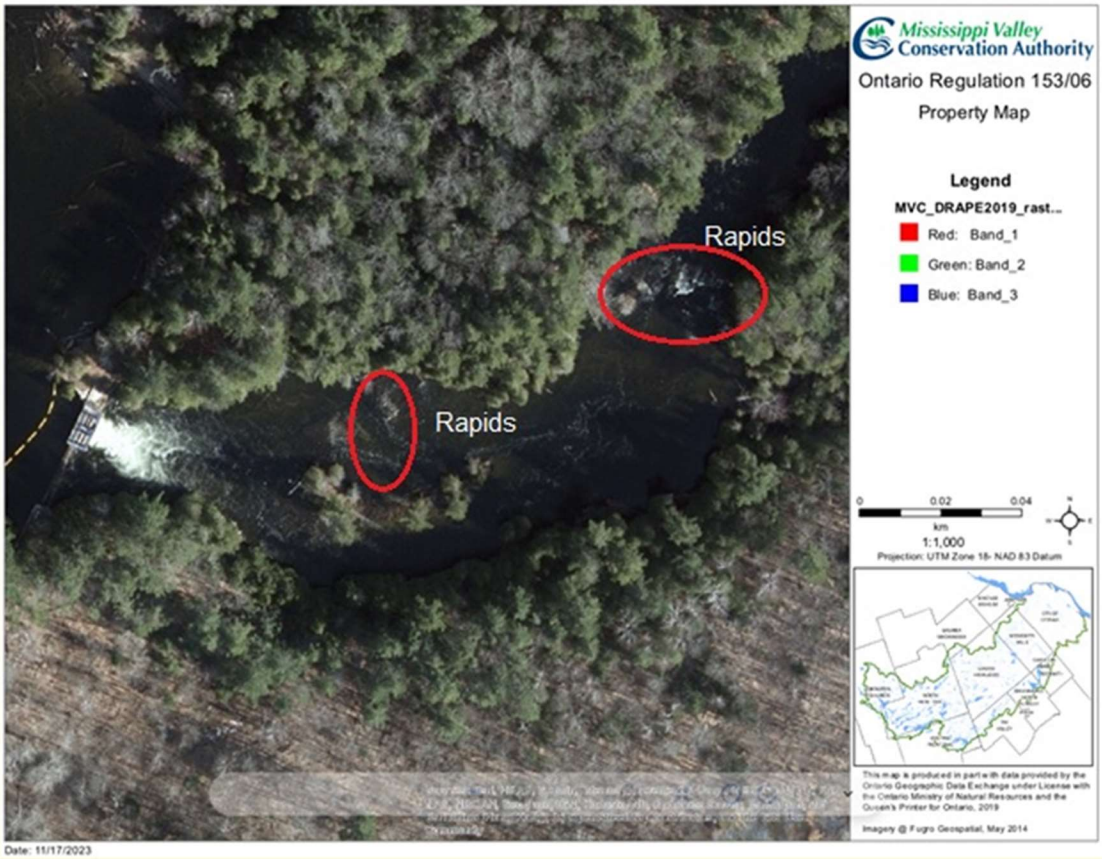

Figure 5: Location of Two Rapids East of Study Area (2019 DRAPE aerial imagery)

The dam at the outlet of Kashwakamak Lake (also referred to as Long Lake in historical sources) is situated on Lot 20, Concession X, of former Clarendon Township (now Clarendon Ward of North Frontenac Township). The immediate cause for the construction of a dam at the exit of the lake into the Mississippi River was to ensure an adequate water supply for downstream mills, particularly for hydro-electric power development.

In March of 1910, the existing "power users" on the river secured enabling legislation from the Ontario Legislature for the formation of the Mississippi River Improvement Company Limited of Almonte, for the purpose of regulating waters in the watershed. The legislation stipulated that the locations of proposed dams and their construction be first approved by the Ontario Hydro-Electric Power Commission.

In September, 1910, the Company duly submitted to the Commission the plans and specifications for storage dams and their locations at the outlets of Long and (Big) Gull Lakes, southeast of the hamlet of Fernleigh in Clarendon Township. The Commission approved the proposal and the Company quickly issued tenders. The successful contractors were Allen Gilmour and George Bradford, both of Almonte (The Canadian Engineer 1910: 503). The 1911 Almonte census lists Allen Gilmour, age 49, as a carpenter and George Bradford, 59, as a mason.

Gilmour & Bradford were awarded the contract on October 3 and work was commenced at one. On October 12th and 13th, the Hydro Commission's Hydraulic Engineer visited both the Long and Gull Lake sites. In his report, dated October 20th, he wrote, "the site unwatered and stripped sufficiently to show that there was no cause for anxiety as to the material upon which the dam was to be built, as it was solid rock throughout, with the exception of some weathered portions on each shore, where several fissures and frost-cracks are to be shot out [sic] or pugged with concrete before the actual construction of the dam is commenced" (no author 1912: 154). The name of the engineer was not cited.

The Engineer further stated that cement was then being hauled to the sites of both dams and stored in "well-built waterproof sheds". And that "fairly good sand and gravel are available within easy teaming distances at both sites." Finally, he noted that the contract was not a large one and "only requires reasonable care during construction and adequate measures for protection from frost to make the work safe and permanent" (ibid).

Construction was reported as "progressing rapidly" at the end of the month (Almonte Gazette October 28, 1910). A "coffer dam" (also referred to as a "breakwater" at the Long Lake location was finished in early November and by the 25th, the Almonte Gazette could claim that the dam had been completed, whereas the Gull Lake structure would not be entirely finished until the spring of 1911. Still, as the Gazette anticipated, "Everything will be in readiness for the spring freshets and the gates will be kept closed until the water will be needed in the dry season (Almonte Gazette November 25, 1910).

Details of the construction of the dams are lacking in contemporary sources, although a later (1919) summary has them formed of "rock-filled cribs," (The Canadian Engineer 1919: 452), survey a misinterpretation related to the cofferdams. A three-foot cofferdam is noted at Gull Lake, and at least four large cart loads of cement had been used, probably for both dams (Daily British Whig 1910).

The Long (Kashwakamak) and (Big) Gull Lake dams were the primary dams for ensuring the supply of water for the Mississippi River users. In 1912, the Hydro-Electric Company still owned and operated the 'storage works" that is, the dams, and was responsible for the regulation of the river's flow, as well as for the collection of tolls from the downstream users. The Commission concluded, "Close touch is kept with the Company and with the storage conditions existing from time to time" (Hydro-Electric Power Commission 1923: 102).
Figure 6 illustrates the location of the dam from a 1950 topographic map.

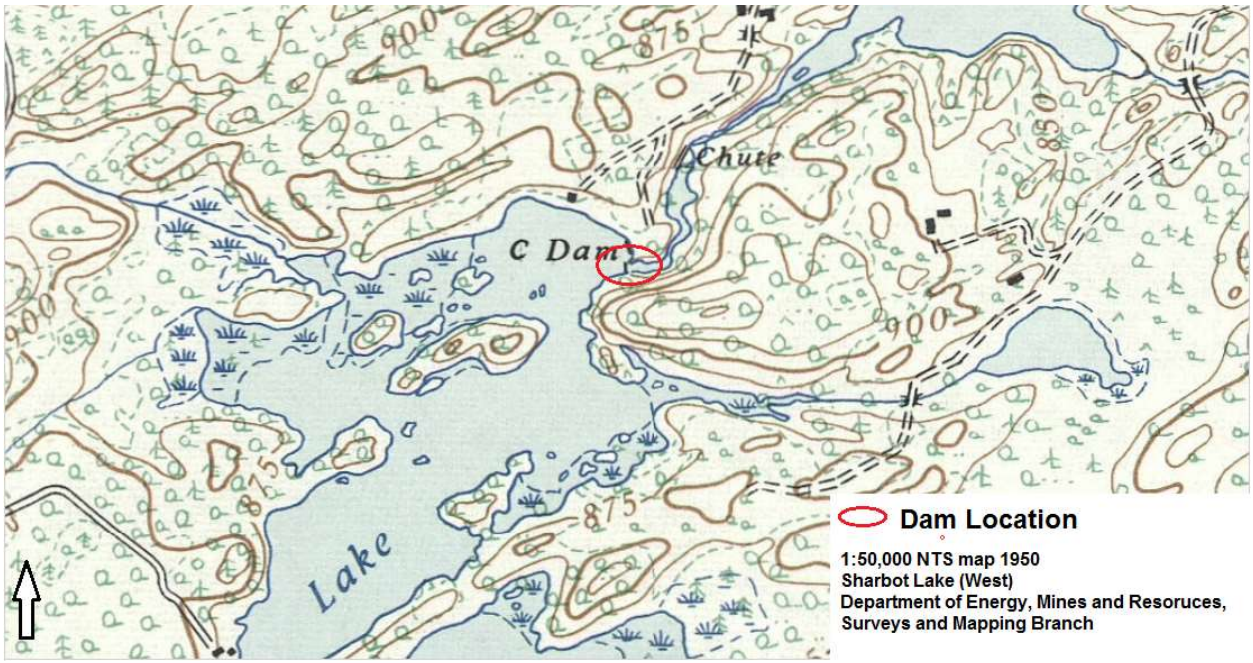

Figure 6: 1950 Topographic Map

Figure 7 illustrates the 1986 plan view and elevation; Figure 8 illustrates the 1986 spillway drawing; Figure 9 illustrates the 1998 plan view and elevation; Figure 10 illustrates the 1998 control weir and north bank; Figure 11 illustrates the 1998 control structure and north wingwall; Figure 12 illustrates the 1998 saddle dam; and, Figure 13 illustrates the 1998 south wingwall. Drawings are such that they represent the true configuration of the current dam.

1.3.6 Plaques, Monuments or Designated Heritage Properties

The Ontario Heritage Trust online plaque guide was accessed September 2023 and while there were no plaques specifically for the study area, the following, located in Lanark County, applies to the Rivers and Streams Act of 1884.

"In the 1870s, Boyd Caldwell and Peter McLaren both owned timber rights on the upper Mississippi River. McLaren built a dam and timber slide at High Falls and refused to let Caldwell use the slide. Caldwell appealed to the Liberal provincial government of Oliver Mowat, which passed the Rivers and Streams Act in 1881. This made it legal to use private improvements on a watercourse if compensation was paid to the owner. McLaren appealed to the courts and to the Conservative federal government of John A. Macdonald. Macdonald disallowed the act three times, to protect the rights of property holders. Mowat and Macdonald disagreed over provincial authority to legislate in matters of property rights, as granted at Confederation. The Judicial Committee of the Privy Council ultimately sided with Caldwell, and Mowat's government passed the Rivers and Streams Act again in 1884. This legal decision recognized that use of Canadian waterways could not be blocked by private interests and helped establish a fundamental principle in federal-provincial relations" (https://www.heritagetrust.on.ca/plaques/rivers-and-streams-act-of-1884).

In addition, the plaque at Ardoch commemorates the struggle back in the early 1980's to preserve manòmin (wild rice) from commercial harvesters (Ardoch First Nation Website, http://www.aafna.ca/)" (MVCA 2019 Background Report Two – People and Property: 10).

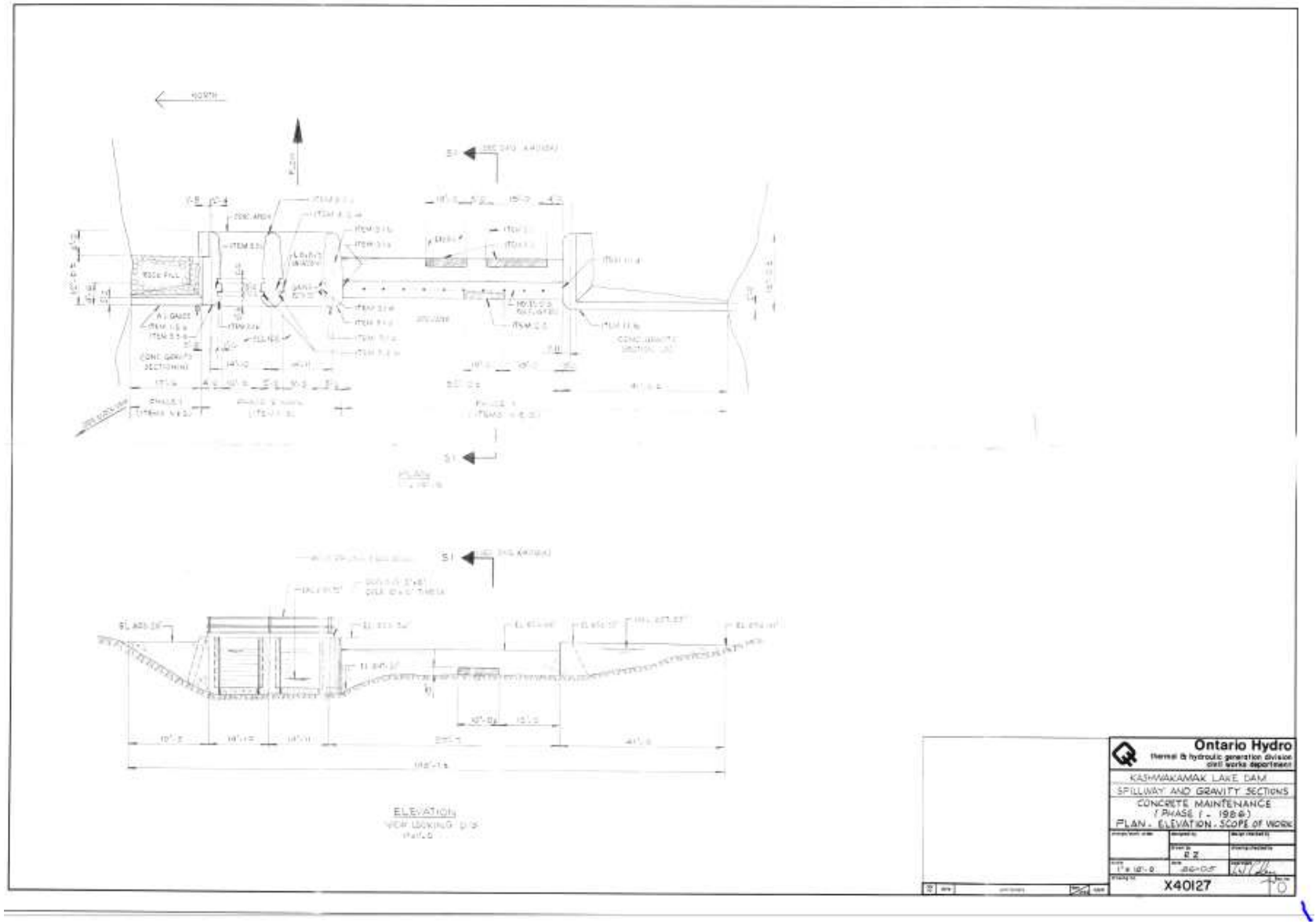

Figure 7: 1986 Plan View and Elevation

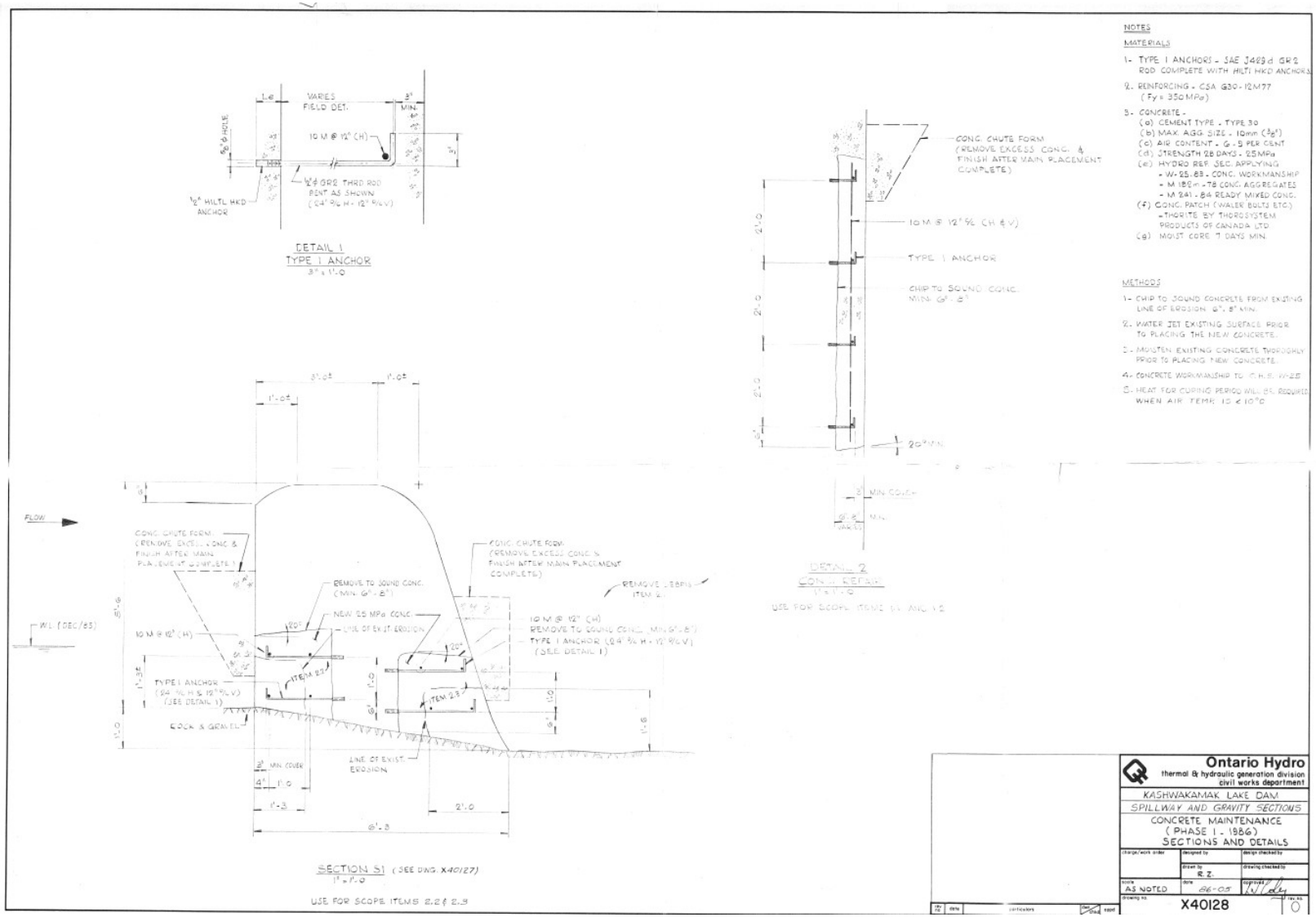

Figure 8: 1986 Spillway Drawing

Figure 9: 1998 Site Plan

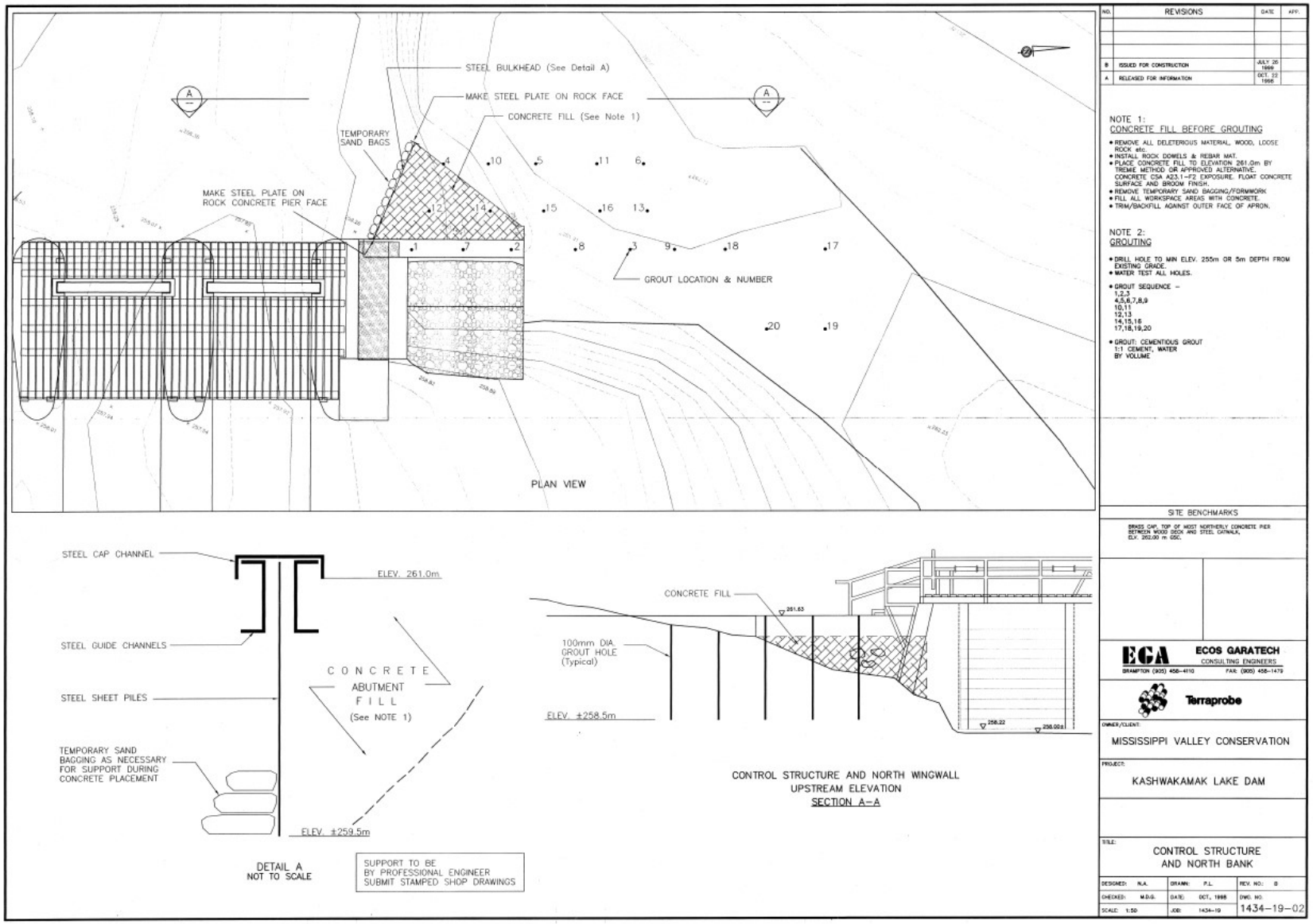

Figure 10: 1998 Control Weir and North Bank

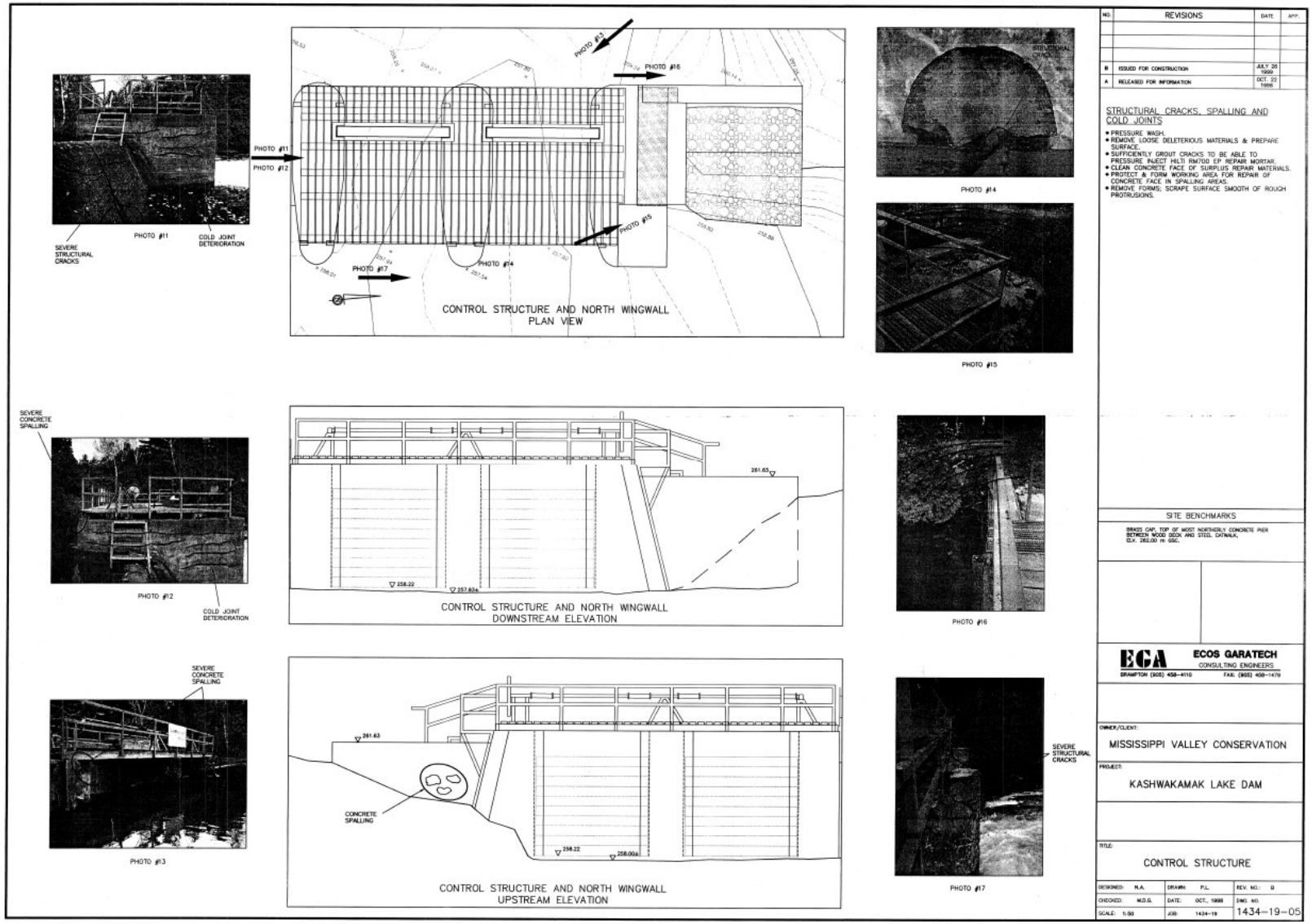

Figure 11: Control Structure and North Wingwall 1998

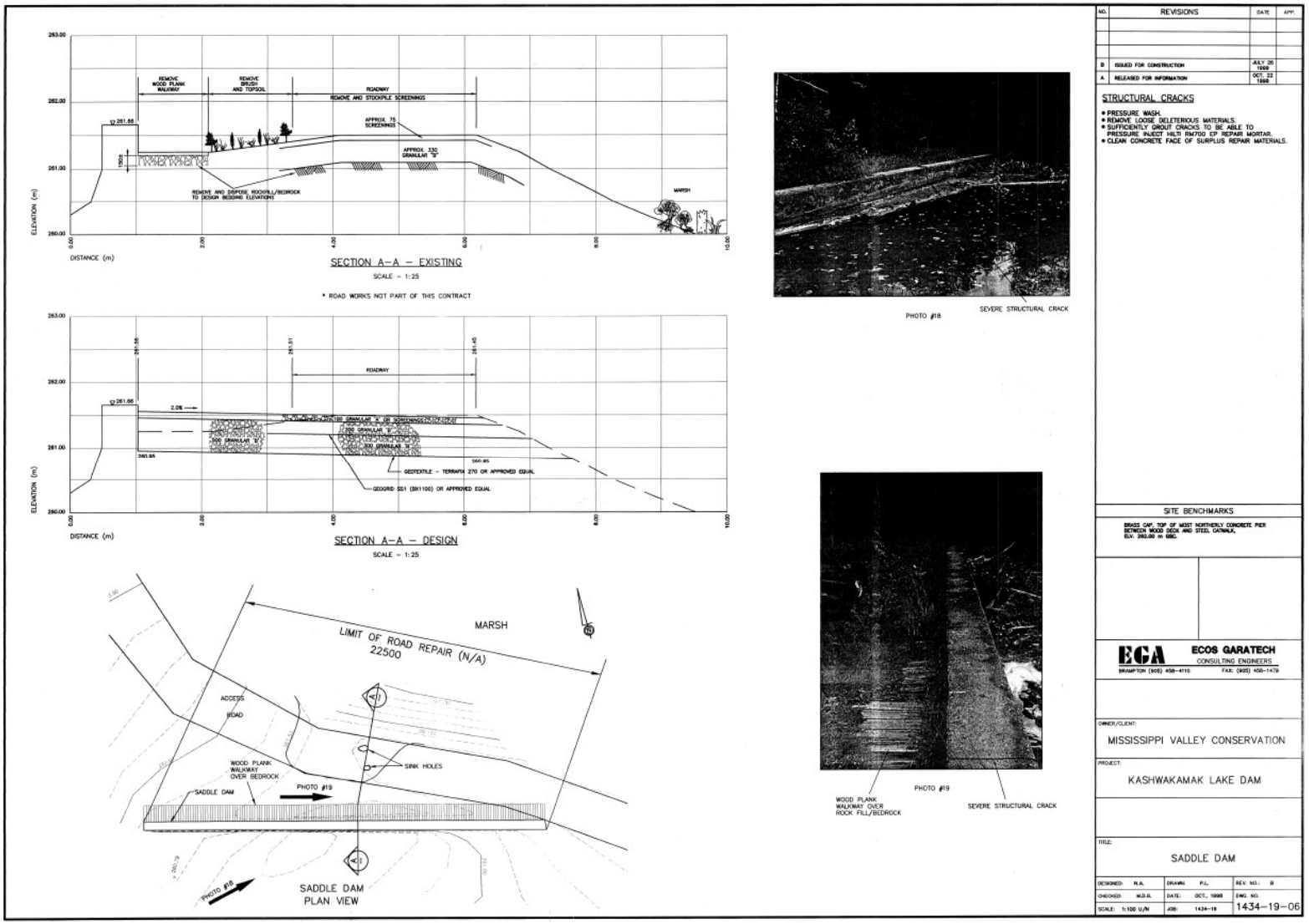

Figure 12: 1998 Saddle Dam

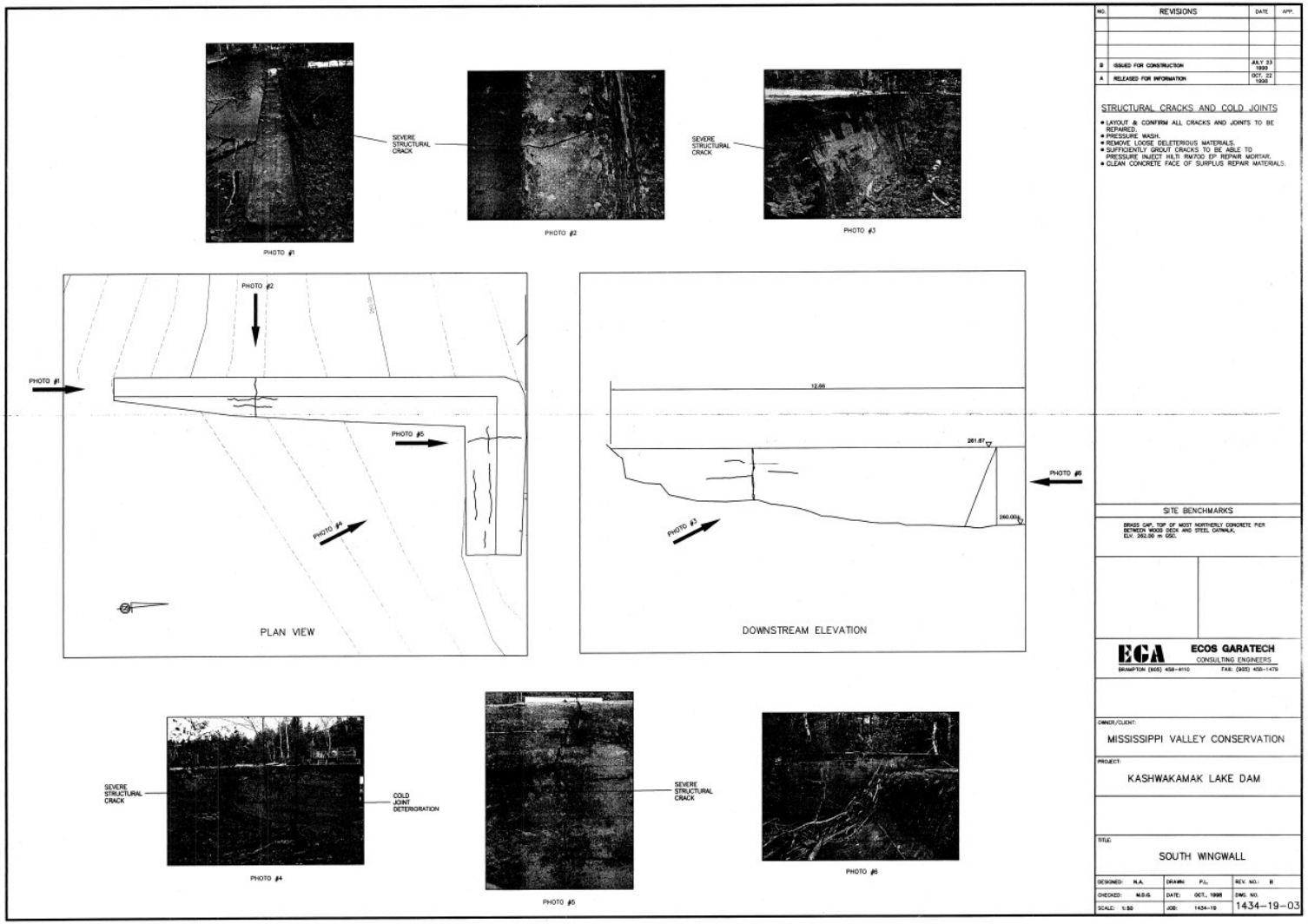

Figure 13: South Wingwall

1.3.7 Determination of Archaeological Potential

There are a number of variables that are evaluated when determining marine archaeological potential. These include:

- The presence of previously identified archaeological sites;
- The presence of rapids or nearby rapids;
- Prehistoric lakes and rivers;
- Marine related infrastructure on shore;
- Records of shipbuilding in area;
- Resource areas (food or medicinal plants, scarce raw materials, early Euro-Canadian industry);
- Shipwrecks and/or history of navigation both Indigenous and non-Indigenous;
- Early historic transportation routes;
- Canadian heritage river; and
- Properties with cultural heritage value/interest or archaeological potential as identified by First Nations, Indigenous communities, the Métis, local histories, and/or informants.

Employing these variables, the following are apparent:

1) There are rapids in the area, located east and slightly northeast of the study area;
2) There are no registered archaeological sites or site leads reported by the Ontario government within 1 km of the study area;
3) Natural resources attractive to both Indigenous and Euro-Canadian peoples were present and included fish, herptiles, birds, mammal and vegetation suitable as foodstuffs and for other types of activity (e.g. weaving mats, baskets, clothing, etc.);
4) The original dam, including a cofferdam, was built in 1910, and has undergone numerous maintenance and repairs;
5) The area of the dam was historically reported to be dewatered and stripped for the placement of the dam, suggesting that extreme modification has been made to the river/lake bottom in the area of the dam; and,
6) Only small vessels, such as canoes and kayaks, would have been used in the vicinity of the study area.

The study area is considered to have marine archaeological potential based on the above, with the possibility of materials still being present for both Indigneous and Euro-Canadian periods along the in-water shorelines, and possibly between crevices in the bedrock.

1.3.8 Rationale for Fieldwork Strategy

The study area was accessed when the downstream portion of the river had been partially dewatered, allowing snorkel survey and visual assessment of shallow pools. The upstream part of the dam could not be lowered and had a depth of 3 – 4 metres requiring snorkel survey as well. The shorelines along the upstream portion were examined and the remaining study area snorkeled in 3-4 metre intervals and recording with a video. Visibility of both upstream and downstream

section was to the bottom from the surface. Survey was conducted post spawning season removing any concern for disturbance of possible spawning beds.

1.4 Archaeological Context

1.4.1 Previously Known Archaeological Resources/Assessments

There are no known land or marine archaeological assessments that have been conducted adjacent or close to the study area.

1.4.2 Current Environment – Existing Features

Kashwakamak Lake is a freshwater lake that is 15 kilometres long, 0.75 kilometres at its widest point, has a surface area of 1,159.8 hectares with a rocky shoreline, and maximum lake depth of 22 metres (72 feet). The lake lies at an election of 260 metres above see level. Its primary inflow and outflow if the main branch of the Mississippi River and the flow is controlled by the Kashwakamak Lake Dam.

The current dam consists of two structures: the main or main control dam, and a secondary saddle dam (overflow dam). The two structures are separated by an earth island. The main dam consists of two bulkhead walls and three concrete piers forming two sluiceways and a broad crested concrete weir. The dam has had major repairs undertaken to address structural and seepage issues (MVCA 2023). Images 1 - 5 illustrate the dam features.

Image 4: Overflow dam and south wingwall facing southwest.

Image 5: Sluiceway from downstream site facing southwest.

1.4.3 Physiography, Bedrock, and Hydrology

The study area lies within the Precambrian shield consisting mostly of granite gneiss, known for its rugged, hummocky topography. The Shield provides many areas for water storage, including Kashwakamak Lake. The softer bedrock have been eroded by glaciers creating the narrow and long lakes characteristic of the area, following a northeast orientation.

The study area lies within the Upper Mississippi Watershed Area (MVCA 2019: 3) (Figure 14). The watershed is characterized by thin or non-existent overburden. Soils that do occur in the area tend to be acidic, with a coarse texture (MVCA 2019:6).

Stream flow for the Mississippi River, data obtained from 1918 to 2019, indicates an average annual flow of 32.4 m^3/sec. Flows tend to be at their peak during the spring freshet, and are often double the annual average flow rate. Low flow rates tend to occur in summer and fall, dropping to between one third and one half of the annual average (ibid: 16).

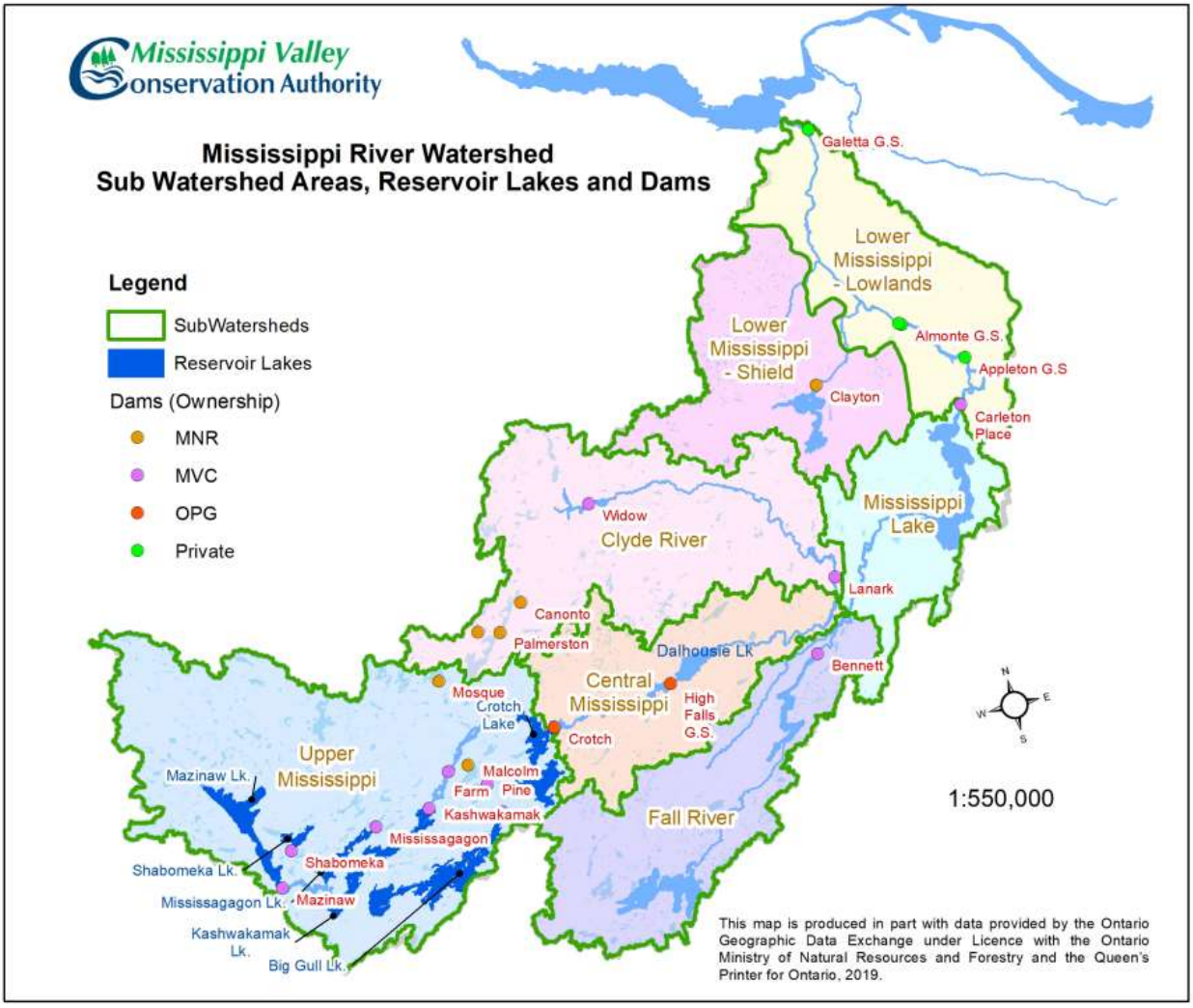

Figure 14: Mississippi River Watershed, Sub Watershed Areas, Reservoir Lakes and Dams (MVCA 2019: Figure 10)

1.4.4 Vegetation, Fish and Wildlife

The Mississippi watershed forest is described as largely an immature forest (having been heavily logged historically) with tolerant hardwood, and white pine with scrub areas.

Kashwakamak Lake contains a wide variety of fish species: Largemouth and Smallmouth bass, Northern Pike, Rock bass, Pumpkinseed, Walleye and Yellow Perch (https://www.gpsnauticalcharts.com/main/ca_on_v_103380165-kashwakamak-lake-nautical-chart.html).

1.4.5 Dates of Site Visit

The property visit was conducted on September 11th, 2023 under sunny skies and a high of 24°C. Conditions provided ideal viewing conditions – no waves and good light penetration.

2.0 METHODOLOGY

2.1 Background Research

As part of the background research, an examination of the following was conducted:

- The Site Registration Database (maintained by the Ontario Ministry of Citizenship and Multiculturalism) was examined for the presence of known archaeological sites in the project area and within a radius of 1 km of the project area by contacting the data coordinator of the Ministry of Citizenship and Multiculturalism;
- Reports of previous archaeological fieldwork within a radius of 50 m around the property were consulted;
- Topographic maps at 1:10 000 (recent and historical) or the most detailed map available were reviewed;
- Historic settlement maps such as the historic atlases were examined;
- Available archaeological management/master plans or archaeological potential mapping were consulted;
- Commemorative plaques or monuments were reviewed; and
- Any other avenues that assist in determining archaeological potential were examined.

2.2 Study Area Visit

The property visit was conducted September 11th, 2023 under sunny skies. The upstream and downstream sides of the dam were subject to marine archaeological assessment. The downstream portion of the dam had been partially dewatered allowing for examination of the river bottom using a snorkel survey conducted in two to three metre intervals. Light penetration extended to the bottom in the downstream section of the study area. The upstream portion of the dam was subject to snorkel survey of the sides of the lake up to 20 metres from the dam face, and snorkel survey in intervals of 3 – 4 metres. Video and still photographs were obtained for the marine archaeological assessment.

3.0 RESULTS

3.1 Background Research

The background research was unable to locate any blueprints or plans of the early 1910 dam, however, the descriptions available indicated that the area had a cofferdam established, and that the bottom was "stripped" to ensure that there were no obstacles that would impede the construction of the dam or flow of water. The same dam exists in situ, however, with many maintenance and repairs having occurred since its initial build. The dam was used to control water for areas downstream of the study area, for early industries such as saw mills, grist and flour mills, logging, etc. There was also a reference in the historic accounts of there being small buildings erected along the shore as storage for materials. The latter is outside the scope of the marine archaeological assessment.

As with most Indigenous prehistory and history, areas located close to rapids were sometimes used to construct fish weirs, and/or to concentrate in fishing and harvesting activities. The area has also been known for pictographs (especially Mazinaw) which suggests a potential for the same, most likely on shore, however, in shallow water periods, this may have occurred in currently inundated places in the study area.

The background research indicated that there is the potential for:

1) Remnants of the 1910 cofferdam;
2) Possible evidence of Indigneous fishing or hunting
3) Possible evidence of pictographs;
4) Possible evidence of Euro-Canadian materials related to the construction period of the dam; and,
5) Use of area by early explorers, missionaries, fur traders and lumbermen;

The above constitutes sufficient evidence for the requirement of an in-field assessment of the study area.

3.2 Marine Archaeological Assessment of Downstream Section

Snorkel survey examined the perimeter of the scour hole at the base of the sluice gates, where the area had been eroded to base bedrock. The remainder of the snorkel survey covered off the study area but only found the occasional broken beer bottle glass. There was no evidence of any Indigenous or Euro-Canadian cultural remains in this area. The deepest section of the downstream was the approximately 2m scour hole. The remaining areas ranged in depth from 0 to about .6m in depth.

Image 6 - 12 illustrate the conditions and snorkel survey of the downstream section of the study area.

Image 6: Downstream from top of dam structure facing east.

Image 7: Northeast corner of downstream area – shows water clarity.

Image 8: Facing south from north bank – loose branches and sticks, bedrock evident.

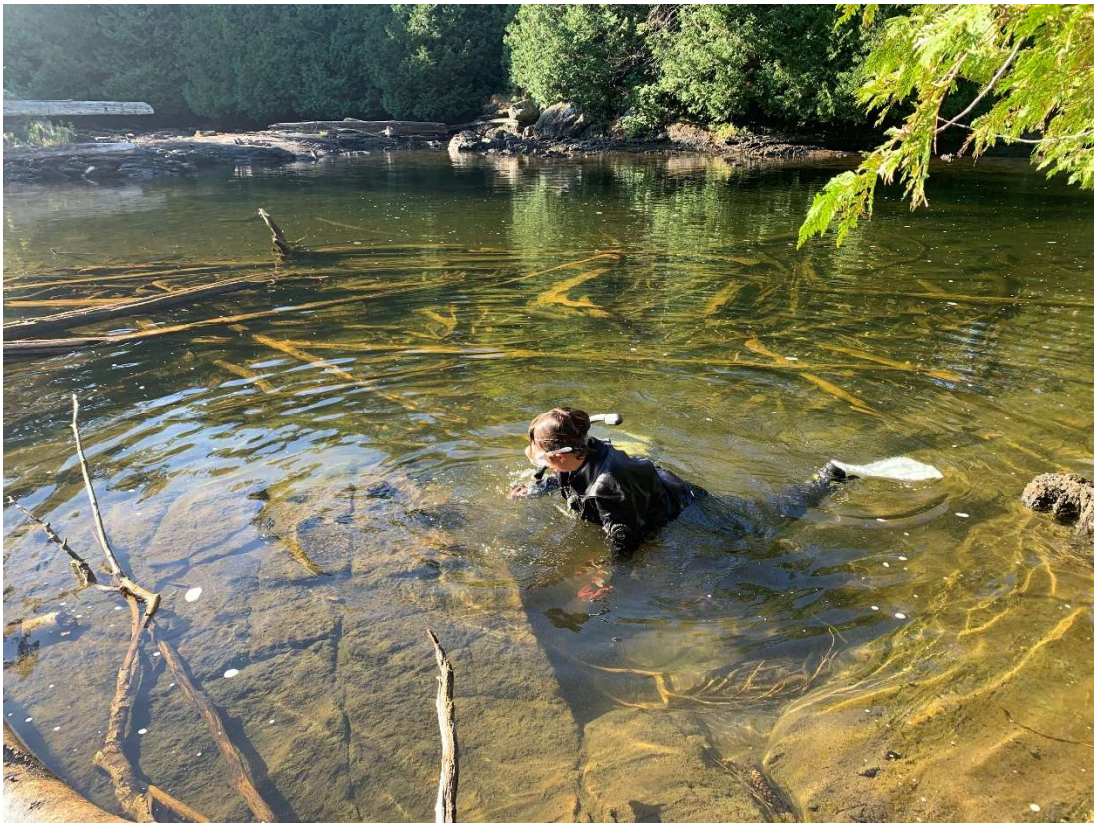

Image 9: Snorkel Survey of downstream section

Image 10: Snorkel Survey about towards southern shore downstream section

Image 11: Water Clarity downstream section and appearance of bedrock

Image 12: Snorkel Survey near south wingwall and plunge pool

3.3 Marine Archaeological Assessment of Upstream Section

Snorkel survey examined both banks on either side of the dam, along the base of the overflow dam, and the remainder of the survey area was assessed in 3 – 4 metre intervals. The face of the dam was avoided as there was still leakage which posed a potential health and safety risk, and given that it had been subject to extreme disturbance during the construction phase of the dam, had little to no archaeological potential.

On either side of the dam at the edges, there was evidence of the former wooden log boom. On the west side, there were three logs, some with chains intact. On the east side, outside the study area, one log boom rested on the bottom but above water. There were holes where the chains would have been affixed and grooves.

The Mississippi Valley Conservation Authority reported that this wooden log boom had been replaced by the current safety boom in 2006. It is unlikely that the boom is more than 20 – 40 year of age. The former log boom lies outside the study area and based on its age is not considered significant.

Aside from noting floating and sunken unmodified logs, there was no evidence of any material culture.

Images 13 – 15 illustrate the upstream conditions and Images 16 and 17 illustrate an above surface portion of the former log boom. Image 18 illustrates the log boom in 2005 when still actively used.

Image 13: Snorkel Survey of shoreline – upstream

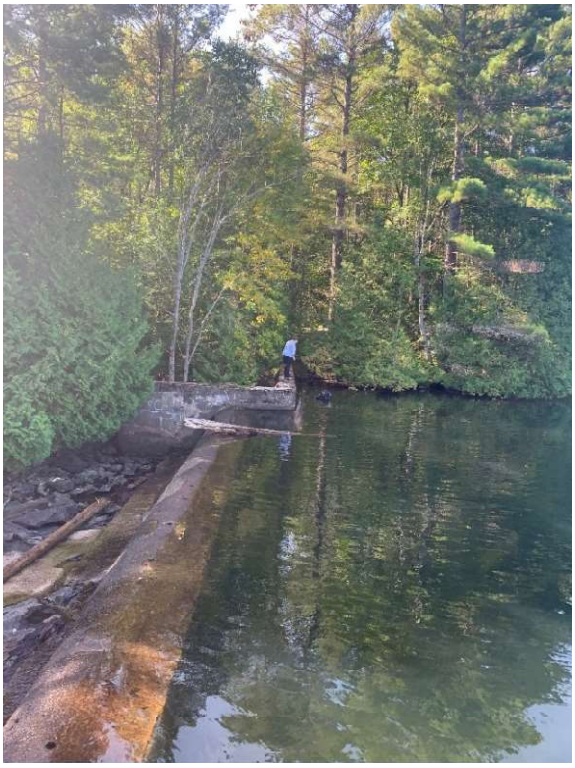

Image 14: Snorkel Survey along west face of south wingwall and overflow dam

Image 15: Snorkel survey of upstream section

Image 16: North end of boom log facing south.

Image 17: South end of log, notched – former piece of log boom.

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Image 18: 2005 Log Boom (courtesy of Mississippi Valley Conservation Authority)

3.4 Inventory of Documentary Records Made In Field

Documents made in the field include:

- Daily record log and field notes – 5 page;
- Image log – 1 page;
- Digital images – 19 colour images and video

4.0 ANALYSIS AND CONCLUSIONS

The original dam was constructed in 1910, and the area "stripped" of any obstacles to assist in the construction of the dam. A cofferdam was built to accommodate the construction, however, there was no evidence of the cofferdam found along the shoreline or in the water as the cofferdam had to be removed. There are no recognizable stone piles that might suggest former cribs, and these might have been destroyed by spring freshets through the area over time. The dam structure itself is well documented with drawings in both 1986 and 1998. There have been numerous patch repairs evident on the structure. The current safety boom on the upstream side was put in place in 2006 replacing the former wooden log boom. The latter probably had a life span of between 20 – 40 years. Evidence of the former log boom were found on both north and south shorelines, on the upstream part of the dam, although just outside the 20 metre study area. It is unlikely they will be disturbed through any dam reconstruction.

Snorkel survey of both the upstream and downstream sections was conducted without observing any cultural remains of significance. There is evidence of use of this area through broken bottle glass on the bottom (downstream side). While there are two rapids located east and northeast of the dam, they are outside the study area. Survey closest to these areas did not locate any cultural material.

Despite excellent survey conditions, including surface to bottom water clarity, there were no cultural remains noted in the survey area.

5.0 RECOMMENDATIONS

Based upon the background research of past and present conditions, the following is recommended:

1. That the study area be considered free of archaeological concerns;
2. Compliance legislation must be adhered to in the event of discovery of deeply buried cultural material or features; and
3. The Algonquins of Pikwakanagan First Nation (AOPFN) should be contacted if any artifacts of Indigenous interest or human remains are encountered during the development of the subject property. A procedure should be developed between MVCA and AOPFN in the event that there is a disagreement on significance or potential importance of sites.

6.0 ADVICE ON COMPLIANCE WITH LEGISLATION

According to the 2011 *S&Gs* (Section 7.5.9) the following must be stated within this report:

This report is submitted to the Minister of Citizenship and Multiculturalism as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Citizenship and Multiculturalism, a letter will be issued by the Ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, they may be an archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of *the Ontario Heritage Act*.

The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological license.

7.0 BIBLIOGRAPHY AND SOURCES

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On-line and Archival Sources

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2019 DRAFT: Backgrounder Two: People and Property, Mississippi River Watershed Plan, Backgrounder Series
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