



CITY OF KAWARTHA LAKES
OMEMEE BEACH PARK
SPLASH PAD FEASIBILITY STUDY
October 2023



Prepared for:

City of Kawartha Lakes
50 Wolfe Street
Lindsay, Ontario K0V 2J2

Attention: Mr. Ryan Smith

Prepared by:

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**City of Kawartha Lakes
Omeme Beach Park
Splash Pad Feasibility Study
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Further to your request, we have prepared this summary of requirements for the proposed Omeme Beach Park Splash Pad located at Rutland Street East and George Street, Omeme for the City of Kawartha Lakes. We conducted a site review to explore the existing conditions on June 27, 2023.

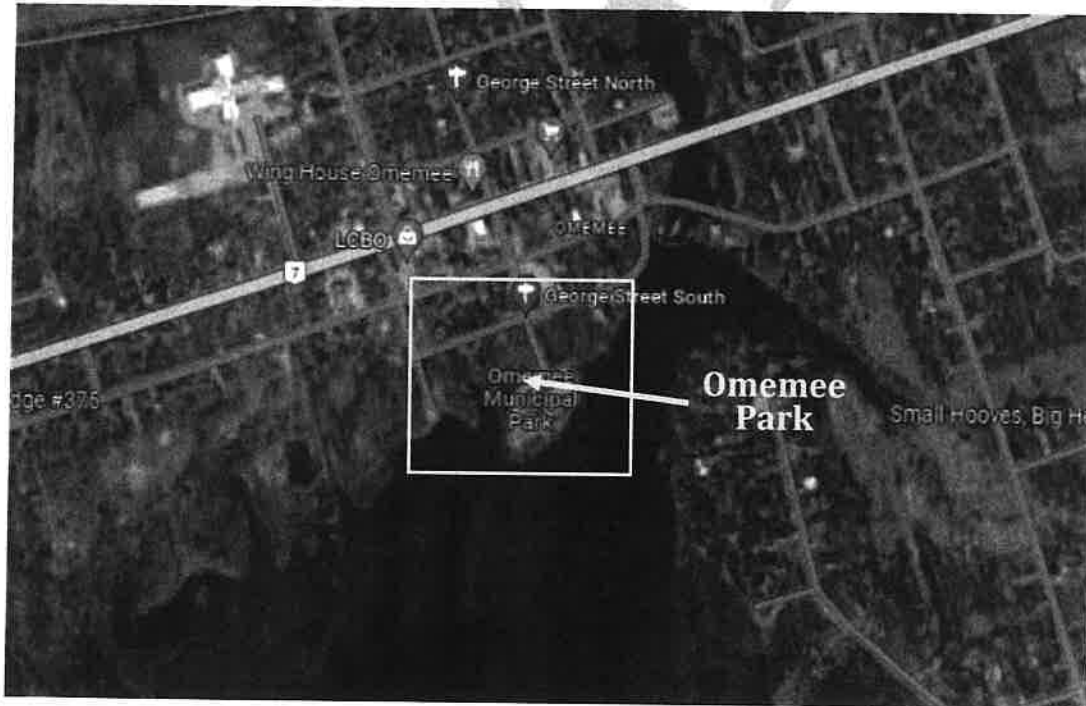
A. GENERAL DISCUSSION

The City of Kawartha Lakes is considering construction of a public splash pad in Omeme, in the George Street area (Omeme Municipal Park), adjacent to the Pigeon River.

A splash pad is a immersive zero depth aquatic play area enjoyed by many on those hot summer days. Many fixtures are available providing a range of fun filled splashing. A water park splash pad makes it easy for everyone to participate, from toddlers to grandparents. A full spectrum of safe play experiences makes the splash pad accessible for children of all abilities and parents can enjoy peace of mind while having fun.

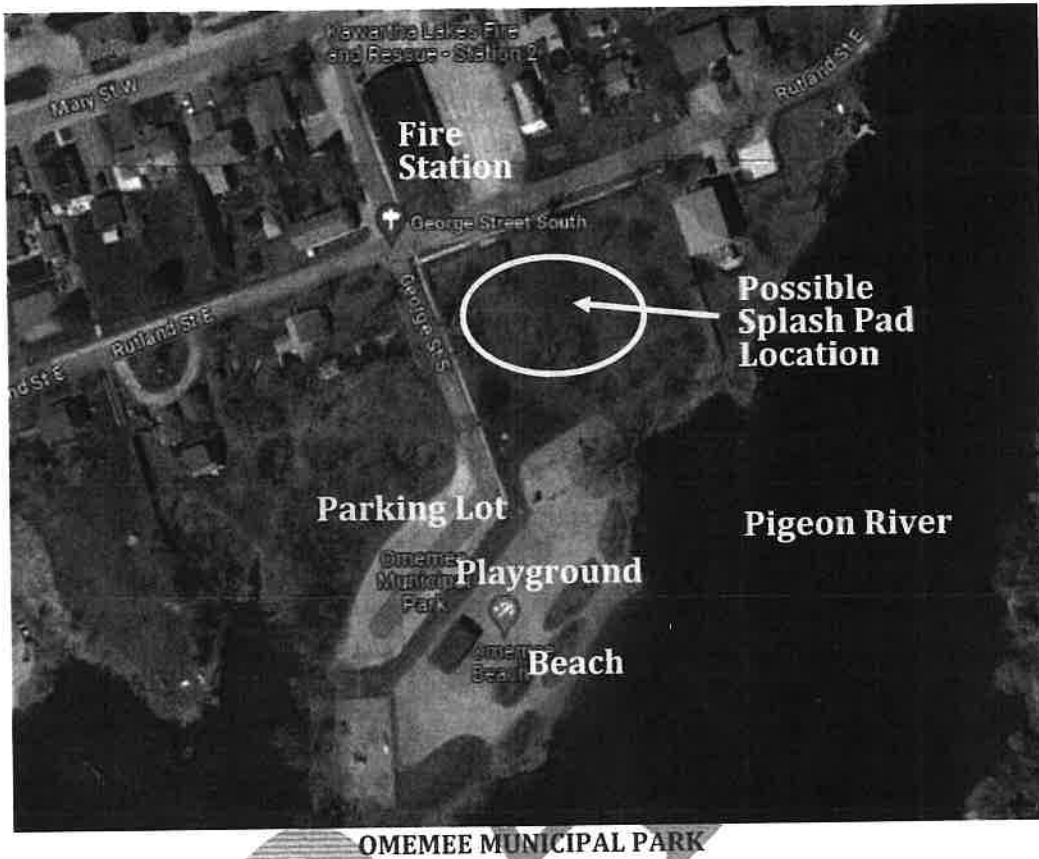


Many factors should be considered in the decision to proceed. These are outlined in the following sections.



KEY PLAN

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B. WATER

Water is essential to any water park. The considerations AS to the source of the water are fundamental to the performance of the water park. The following are our observations based on this site.

Water Usage

The essence of a splash pad/water park is the water. There are many fixtures and features that are now available, providing a wide range of fun for the users. The water consumption of these fixtures varies widely and should be tailored to the amount of water available. The consumption could range from 20m³ to 100m³ per day, depending on fixtures selected.



Depending on the availability of water, the 'handling' of the water can vary.

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If the municipal services are readily available (water supply and sewers), the water need not be recycled and could be discharged directly down the drain to the sewers. Assuming that this is municipal (treated) water source, limited onsite treatment would be required. This is not the case for Omemee.

Given that a sufficient source of water is not available, a holding tank and a recycling system would be required. The tank would be of sufficient size to supply the selected fixtures. Additionally, a pumping system (to feed the fixtures) and a water treatment system would be required.

Many flow through spray park are designed for a flow rate of about 70 to 150 gallons per minute (GPM) when operating. The largest flow through spray parks can use up to 250 GPM; however this is not recommended.

The flow only happens when the spray park is activated by someone touching the activator and setting off a 3-minute sequence before it needs to be reactivated. A recirculating spray park only uses water to initially fill the holding tank (typically a 1500 to 3000 gallon underground tank) and then water to make up for losses due to evaporation and bather carry off. A 38mm (1½") water service line is recommended to supply a recirculating spray park.

Water source

There is limited municipal water available at this location. There is a well at the fire station located nearby. This could provide a source of water but not for a continuous flow. This source would be used to 'top off' the storage reservoir tank. Depending on the hardness of the well water, pre-treatment may be required.

An alternate source for water is Pigeon River. This would require a pumping system and a pre-filtration system to clean the river water. A Permit to Take Water may be required from the Conservation Authority.

Health codes that govern pools and spray park require a potable water source.

Water Recycling

Given the limited availability of municipal water at this location, a water recycling system is required. This will include a holding tank (see above for water source options), and filtration/treatment system and a pump. Generally, splash pads with recycling require a separate building to house pumps and treatment equipment.

Power

A recirculating spray park needs one single phase 30-50A 220-240V circuit. The exact requirement should be confirmed once the design and basic system requirements are established. It can be designed to use single or three phase. At the time of design, the equipment should be selected to match the availability of the power onsite.

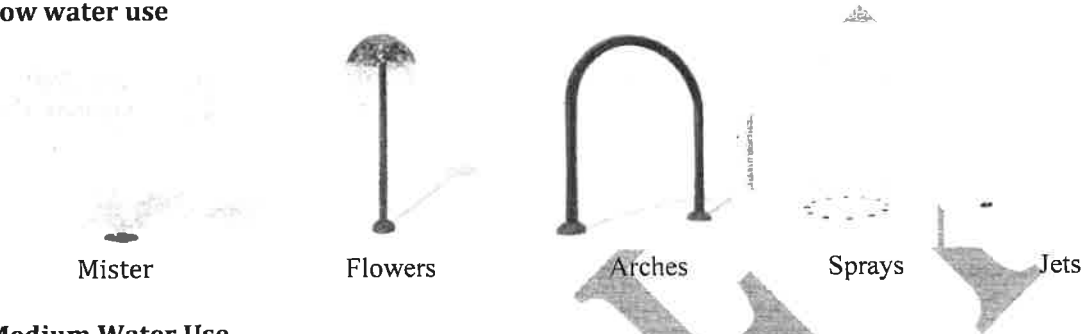
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C. WATER FEATURES

As noted, there are many water fixtures available for splash pads. The shape options of the pad are infinite, subject to the imagination of the designer (and budget). Generally, splash pads are free formed, to provide a fun play area with corresponding fixtures.

The following illustrates some of the available fixtures.

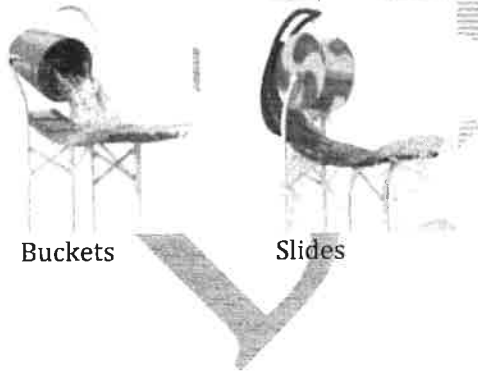
Low water use



Medium Water Use



High Water Use



D. PARKING

It is assumed that the existing parking lot would continue to serve this park and a new splash pad. Additional costs are not anticipated.

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E. OPERATING COSTS

The cost to operate a flow through spray park is between \$5,000 to \$30,000 per year in water costs, depending on the flow rate and overall size of the park. A recirculating spray park has a range of \$5000 to \$10,000 for water costs and has a much lower yearly cost to operate as it reuses the water. However, there are higher staffing costs as well as treatment cost for a recirculating system. This must be factored into the considerations.

F. STAFF REQUIREMENTS

For a flow through spray park someone should stop by once or twice a week to check to make sure everything is operating properly and there hasn't been any vandalism. For a recirculating spray park someone will need to check it every day that it is operating and complete a few tasks like take water samples, record operating parameters, and check that the automated system is doing its job.

G. OTHER CONSIDERATIONS

Operating Times

The spray park can be equipped with a timer that allows it to operate only during set hours. These hours are chosen by the Municipality for the spray park and prevents it from being activated outside of these hours (for example late at night). Depending on which controller is selected the operator can chose different hours for different days (say week days and weekends) and change them over the season.

Splash pad parks typically run from the end of May (Victoria Day long weekend) to September (Labour Day).

Spring Start Up

Commissioning a flow through spray park in spring requires removing the winterizing nozzle covers on the spray park features that are flush with the concrete and installing the spray nozzles. Then the water system will need to be turned on, this usually requires reinstalling the water meter that was removed for winter, closing the drain valves located on each of the feature water supply lines and checking to make sure each feature solenoid valve operates properly. This typically takes an experienced person ½ day. Commissioning a recirculating system is a bit more involved and requires everything that is done for a flow through spray park plus starting up the water treatment equipment. An experienced person typically completes this in 1 day. The fixtures will also have to be reinstalled where they are removed for winter storage.

Winterization

To winterize a flow through spray park the water, supply is shut off and drained back to a self-draining shut off valve that is below the frost line and the water meter is removed. Then the drains on each of the feature lines are opened to drain any water out of the feature lines. The spray nozzles (flush with the concrete) are then removed and antifreeze is poured into each until it run

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out at the drain port. This ensures that no lines will have ice forming in them. The supplied winter caps are installed on these nozzles. Above ground features are not typically removed.

Winterizing a recirculating spray park requires the same items as a flow through spray park but also requires the water treatment system equipment to be fully drained of water, some probes removed and a few other small items completed.

Fixtures can be removed and stored to prevent winter damage or vandalization.

Location

The location of the splash pad within the park requires careful consideration. Given the likely water source is the fire station, location of the pad closer to the station would reduce water lines and associated costs/maintenance.

Additionally, the lower portion of the park (closer to the river) has a sandy area. Distancing from this sand would be advisable to minimize the tracking of sand into the splash pad.

Careful grading of the site and setting the relative elevation of the splash pad are important to address these issues.

Pathways

Subject to the final splash pad location, pathways will need to be constructed, connecting the various features within the park (include washrooms (fire station), parking, river, sand play area etc.)

Other Amenity Improvements

Should the decision be made to proceed with the splash pad, consideration to improving other amenities in the area might be considered. These could include:

- Parking lot
- Beach/river access
- Pathways
- Existing play area.

H. CONCLUSION

There are many considerations to be made in a decision to construct a splash pad at the Omeme Municipal Park. Based primarily on the availability of water (or lack thereof), the following should be considered:

- Overall construction cost,
- Anticipated use (Omeme population is only 1300, number and ages of children to be confirmed),
- Pump/treatment building,
- Connection of water source (fire station well or Pigeon River),

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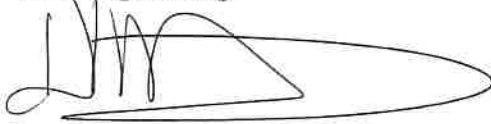
- Pre-treatment if river water is used as source,
- Selection of water fixtures that support low water consumption,
- Staffing costs for operation (daily treatment and monitoring).

Additional considerations may be obtained from stakeholders. Feedback from the community to determine how well the plans for a splash pad align with the community's wants, needs and priorities. How successful the splash pad will be dependent on this community feedback. When gathering feedback from the community and stakeholders, the following considerations should be made:

- Whether you want to consider eco-friendly solutions
- Whether you want to consider implementing play zones
- What impact the splash pad will have on its surroundings
- Whether your splash pad will be targeted to a certain age group

We trust that this is acceptable to you and welcome your comments or questions.

Yours very truly,
Kalos Engineering Inc.



Per: Hank A. P. Huitema, M. Eng., P. Eng.
Senior Structural Engineer

HAPH/ejd

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**APPENDIX A
PHOTOGRAPHS**

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Photo 1 - Playground Area (sand)



Photo 2 - Park - looking to fire station



Photo 3 - Play Equipment



Photo 4 - Play Equipment

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**Appendix B
Limitations**

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This work does not wholly eliminate uncertainty regarding the potential for existing or future costs, hazards or losses in connection with a property. No physical or destructive testing and no design calculations have been performed unless specifically recorded. Conditions existing but not recorded were not apparent given the level of study undertaken. Only conditions actually seen during examination of representative samples can be said to have been appraised and comments on the balance of the conditions are assumptions based upon extrapolation. Kalos Engineering Inc. can perform further investigation on items of concern if so required.

Only the specific information identified has been reviewed. The Consultant is not obligated to identify mistakes or insufficiencies in the information obtained from the various sources or to verify the accuracy of the information.

Kalos Engineering Inc. is not investigating or providing advice about pollutants, contaminants or hazardous materials. The Client and other users of this report expressly deny any right to any claim, including personal injury claims which may arise out of pollutants, contaminants or hazardous materials, including but not limited to asbestos, mould, mildew or other fungus.

Applicable codes and design standards may have undergone revision since the subject property was designed and constructed. As a result design loads (particularly loading from occupancy, snow, wind, rain and seismic loads) and the specific methods of calculating capacity of the system to resist these loads may have changed significantly. Unless specifically included in our scope, no calculations or evaluations have been completed to verify compliance with current building codes and design standards.

Budget figures are our opinion of a probable current dollar value of the work and are provided for approximate budget purposes only. Accurate figures can only be obtained by establishing a scope of work and receiving quotes from suitable contractors.

Time frames given for undertaking work represent our opinion of when to budget for the work. Failure of the item, or the optimum repair/replacement process, may vary from our estimate.

