DELHI PARK STORM OUTFALLS – TOWN OF PICTON

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

SCHEDULE B

PREPARED BY QUINTE CONSERVATION
On Behalf of the Corporation of the County of Prince Edward (the Proponent)

Final Report Date: February 24, 2017
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1 EXECUTIVE SUMMARY

The Bay of Quinte has been listed as an Area of Concern due to degradation of the water quality. One source of pollution input to the Bay has been identified as urban runoff or stormwater. The Delhi Park stormwater outfalls currently allow two catchment areas of 68 hectares and 56 hectares to drain with very minimal treatment into the Bay. In order to address this problem, Quinte Conservation worked with the County of Prince Edward and Ministry of the Environment to conduct an environmental assessment to assess methods of treatment for the stormwater. This project is following the Municipal Class Environmental Assessment (2011) – Schedule B screening process.

A study area was developed by examining the existing outfalls and land surrounding the outfalls in the general area of Delhi Park. Background studies included a compiled plan of property boundaries within the study area, a phase one archeological study, and a phase one environmental site assessment. One open house was held to discuss the project with the public. A decision matrix was developed which was made up of three primary components: level of treatment, facility (treatment) type, and facility location. The matrix weighed the technology types, possible locations, and potential benefits/drawbacks of each.

The preferred solution to address stormwater quality was determined to be an underground oil and grit separator unit upstream of a wet pond for each of the catchment areas. This solution will address concerns raised by the public regarding installation costs and impacts to neighbouring properties, while improving the water quality being discharged to the Bay. Further archeological and contaminant investigations will need to be conducted during the detailed design phase of the project.

2 INTRODUCTION

Contaminants, such as oil, grease, metals and pesticides, tend to build up on surfaces in urbanized areas. These contaminants come from sources such as pavement deterioration, tire and brake pad wear, vehicle emissions and spills. They may also come from yard and garden care, and pet feces. Stormwater runoff picks up these contaminants and can transfer them to streams or groundwater. This has many
detrimental effects, including decline in plant and animal diversity, pollution of drinking water supplies, and degradation of recreational uses.

The purpose of the project is to provide water quality treatment for the Delhi Park stormwater outfalls which drains approximately 124 hectares of developed lands to the Bay of Quinte with very minimal treatment provided by existing ponds for each of the outfalls.

2.1 Need for the Project

In 1985, the International Joint Commission under the Great Lakes Water Quality Agreement designated the Bay of Quinte as an Area of Concern due to degradation of the water quality. The beneficial uses which were considered impaired are given in Table 1. The Bay of Quinte Remedial Action Plan (BQRAP) was established to restore the beneficial uses of the Bay of Quinte. A total of 80 recommendations were identified in the Bay of Quinte Restoration Council, Stage II - Time to Act document as actions to be taken by various agencies and municipalities to improve the water quality.

BQRAP has identified stormwater as a significant source of pollutants to the Bay of Quinte. Many actions have been taken by BQRAP and municipalities to reduce stormwater impacts on the Bay including removal of cross-connections, pet litter control, reduction of sanitary bypasses, street sweeping, and stormwater control of new urban areas.

**Table 1: Summary of BQRAP's recommendations related to control of stormwater runoff and sources of bacterial contamination**

<table>
<thead>
<tr>
<th>BQRAP Recommendation</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>Disconnect roof drains and sump pumps from sanitary sewer system</td>
</tr>
<tr>
<td>25</td>
<td>Implement long-range strategies for sewer system inspection, maintenance and rehab</td>
</tr>
<tr>
<td>26</td>
<td>Implement water conservation</td>
</tr>
<tr>
<td>27</td>
<td>Enforce domestic pet litter bylaws</td>
</tr>
<tr>
<td>28</td>
<td>Take measures to discourage presence of gulls and control dog access at swimming beaches.</td>
</tr>
<tr>
<td>29</td>
<td>Routine street cleaning and catchbasin cleaning</td>
</tr>
</tbody>
</table>

Quinte Conservation
Municipal Class Environmental Assessment- Schedule B
February 24, 2017
<table>
<thead>
<tr>
<th>BQRAP Recommendation</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Ensure pleasure crafts on the Trent Severn waterway comply with plumbing and boating regulations</td>
</tr>
<tr>
<td>31</td>
<td>Storm sewers and drainage ditches should be investigated for sources of dry-weather bacterial contamination</td>
</tr>
<tr>
<td>32</td>
<td>Proper disposal of human waste and litter generated by ice-fishing on the Bay</td>
</tr>
<tr>
<td>33</td>
<td>Stormwater quality control for new urban development</td>
</tr>
<tr>
<td>34</td>
<td>Ontario’s Subwatershed Planning Process should be used as input to municipal secondary plans (for new urban development areas).</td>
</tr>
<tr>
<td>38</td>
<td>Investigate septic systems on properties fronting on the Bay and take corrective measures where needed</td>
</tr>
</tbody>
</table>

Recommendation #23 requires completion of Pollution Prevention and Control Plans (PPCPs) for Picton, Trenton, Belleville and Deseronto. PPCPs have been developed for bay front municipalities that provide guidance on continuing efforts to reduce pollution from urban areas. The most recent regional PPCP was completed in 2011, and it notes that more effort can be placed on end of pipe remedial measures for existing built-up areas.

In order to assist in the de-listing of the BQRAP area, Quinte Conservation received funding from the Canada-Ontario Agreement for the Great Lakes and Great Lakes Sustainability Fund to reduce the stormwater impacts to the Bay of Quinte water quality by providing project management services to Prince Edward County, Quinte West, the City of Belleville and other local municipalities for the design, approvals and construction of remedial stormwater management facilities in existing, built-up urban areas as identified in the Pollution Prevention and Control Plans completed in 1997, 1998 and 2011 respectfully.

Other recommendations with links to urban development were summarized in the Pollution Prevention and Control Plan (2011) and reproduced shown in Table 2.

The BQRAP has assisted in the development of Pollution Prevention and Control Plans for the municipalities fronting on the Bay of Quinte.

A stormwater management plan has been implemented for newly developing areas, however, existing built up areas requiring remedial treatment have yet to be addressed. Hurdles for full implementation include funding and staff availability. This project intends to assist with the execution of the remedial stormwater management
implementation. The Ministry of Environment Stormwater Management Planning and Design Manual (2003) indicates that most performance studies in Ontario have been of wet pond or pond/wetland systems. The results of performance studies indicate a fair consistency for most end-of-pipe stormwater management facility (SWMF) types resulting in typically 60-80% suspended solids (SS) removal and 40-50% total phosphorus (TP) removal. Overall, the results point to an optimistic view of SWMF performance, particularly in retrofit situations (MOE, 2003).

The completion of this study would identify the location of retrofit stormwater management facilities to enhance the treatment of urban drainage before it enters the bay.

2.2 Alternatives to the Undertaking

The ‘Do Nothing’ approach would be the alternative to undertaking the development of a stormwater management facility. This alternative would continue to allow stormwater to drain to the Bay of Quinte with minimal treatment and would not address the recommendations in the Pollution Control Plan or support the goals of the Bay of Quinte Remedial Action Plan.

2.3 Description of the Undertaking

The purpose of the project is to provide enhanced water quality treatment for the Delhi Park stormwater outfalls, which drains into approximately 124 hectares of developed lands into the Bay of Quinte. The undertaking will be the construction of retrofit stormwater management facilities, capable of providing a water quality improvement to the present condition.

2.4 Approval Process and Regulatory Requirements

This project is following the Municipal Class Environmental Assessment—Schedule B screening process (2011). The establishment of new stormwater retention/detention ponds and appurtenances or infiltration systems, including outfalls to receiving water body where additional property is required, has been pre-determined to be an activity which can be subject to the ‘Schedule B’ screening process.

Following completion of the Municipal Class B Environmental Assessment process, applications will be made for any permits or approvals that may be required prior to construction. This will include the Ministry of Environment—Environmental Compliance Approval.
2.5 Other Permits, Licenses and Approvals

Generally, in addition to the Environmental Assessment Act approval, there are a series of necessary permits, licenses and approvals that may be required under federal and provincial legislation for any given project. Quinte Conservation has contacted all potentially affected regulatory agencies to ensure that the undertaking will conform to all requirements and that approvals are obtained in a timely manner. See table 2.

Table 2: List of Permits, Licenses and Approvals Required for the Undertaking

<table>
<thead>
<tr>
<th>Permit</th>
<th>Agency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontario Reg. #319/09 Permit</td>
<td>Conservation Authority</td>
<td>Development (i.e. construction/excavation/filling/grading) within 45 metres of the 1:100 year floodplain of the Bay of Quinte</td>
</tr>
<tr>
<td>Environmental Compliance Approval</td>
<td>Ministry of Environment</td>
<td>Review of the detailed design of the stormwater infrastructure</td>
</tr>
</tbody>
</table>

**Note:** The stormwater pond near York Street has been identified as significant in the Assessment Report for the Quinte Source Protection Plan because it is located in an *Intake Protection Zone (P2)* for the Picton drinking water supply. Therefore the existing facility and any upgrades to that facility will be impacted by the plan. The main requirement will be for the municipalities to inspect and maintain the facility on an annual basis and report their activities to the Quinte Source Protection Authority.

### 3 CLASS EA PROCESS

#### 3.1 Study area definition

The study area lies entirely within the urban limits of the Town of Picton extending to the Bay of Quinte (Picton Bay). In particular, it includes many parcels covering a total of approximately 9 hectares in an area referred to as Delhi Park. The Park is presently used for a variety of purposes which include open space, a baseball diamond, recreational walking trails, a dog park and toboggan hill. An existing stormwater facility is located at the north end of the property draining into Marsh Creek which flows through the middle of the site into the Bay of Quinte. On the east side of the park there is a sewage pumping station (located on the former site of the sewage treatment) which pumps sewage up to the new sewage treatment plant located off Church Street. Effluent from the new sewage treatment plant returns to Marsh Creek just downstream of the footbridge in the park. There are two large cemeteries that have existed since the 1800’s abutting the south and south east portion of the park. The lands to the west are predominantly comprised of commercial and residential properties, a large Church, and a municipal parking lot. The study area drains into the Bay of Quinte (a very large, ‘Z’ shaped inlet of Lake Ontario) within the urban area of the Town of Picton. As is the case of many Ontario towns, the waterfront area was historically used for industrial purposes. Today, the lands within one kilometer of the study area contain a mix of residential, commercial, industrial, and public open space.
Figure 2 Map taken from the Picton Pollution Control Plan (2011), which illustrates the study area, catchment P1 and P2 and outlet number 1 & 2
4 ENVIRONMENTAL AND SOCIO-ECONOMIC FEATURES IN THE STUDY AREA

3.1 Appearance of the Landscape

The study area is in the Marsh Creek watershed. This watershed has a drainage area of approximately 5 square kilometres. The main channel of Marsh Creek is 4.6 kilometres in length. The stretch of Marsh Creek within Delhi Park is relatively flat with floodplain areas adjacent to the channel. The rest of the watershed rises in elevation significantly with Macaulay Mountain to the east, the Ridge Road Esker to the south and west and the downtown area of Picton to the north.

The land cover within the watershed varies and includes drainage from urban, rural and natural areas. Approximately 52 percent of the land cover is forested, while 23 percent is developed and 17 percent is agricultural. See figure 2.

4.2 Biological Resources

As previously stated, the Bay of Quinte was designated an ‘Area of Concern’ in 1985 by the International Joint Commission, under the Great Lakes Water Quality Agreement between Canada and the United States due to human activities that had severely damaged the quality of the environment. Environmental concerns in the Bay of Quinte are excess nutrients, persistent toxic contamination, bacterial contamination and the loss or destruction of fish and wildlife habitat.

A small watercourse (known as Marsh Creek) flows through the study area. Historic mapping indicates that the watercourse drained through a coastal wetland before entering Picton Bay (an embayment of the Bay of Quinte). The Bay of Quinte is known as a productive waterfowl breeding/staging area and fishery, however, the area has been greatly altered since the formation of the Town of Picton. The coastal marsh was dredged to be utilized as a shipping canal, before being landfilled with waste soils and household/industrial materials.

The study area is now a town park, and receives regular mowing throughout the growing season. The clay soil in the study area supports upland vegetation which is dominated by species which thrive in disturbed areas. Red Cedar, Poplar, Manitoba Maple, Black Locust, Green Ash, Cracked Willow, White Elm; with a shrub layer consisting of Common Buckthorn, Red Dogwood, Apple, Willow, Staghorn Sumac, Honeysuckle, Rose, Lilac; and a forb layer of cattail, phragmites, Smooth Broome,
Timothy, and many other cool season grasses & asters. No species of significance were noted during field investigations by biologists.

Even though they were not recorded on site, a records review & field investigation of the study area revealed a long list of ‘Species At Risk’ which have habitats that overlap the study area, and are listed below in table 3.

Table 3: List of Species at Risk with ranges that overlap the study area

<table>
<thead>
<tr>
<th>Taxonomy</th>
<th>Common Name</th>
<th>Scientific Name</th>
<th>OMNR Status</th>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birds</td>
<td>Chimney Swift</td>
<td>Chaetura pelagica</td>
<td>Threatened</td>
<td>Nest and roost in manmade structures</td>
</tr>
<tr>
<td>Birds</td>
<td>Cerulean Warbler</td>
<td>Dendroica cerulea</td>
<td>Special Concern</td>
<td>Large, undisturbed tracts of mature, semi-open deciduous forest</td>
</tr>
<tr>
<td>Birds</td>
<td>Black Tern</td>
<td>Chlidonias niger</td>
<td>Special Concern</td>
<td>Nests in shallow cattail marshes</td>
</tr>
<tr>
<td>Birds</td>
<td>King Rail</td>
<td>Rallus elegans</td>
<td>Endangered</td>
<td>Large, quiet marshes</td>
</tr>
<tr>
<td>Birds</td>
<td>Eastern Meadowlark</td>
<td>Sturnella magna</td>
<td>Threatened</td>
<td>Large expanses of grasslands</td>
</tr>
<tr>
<td>Birds</td>
<td>Barn Swallow</td>
<td>Hirundo rustica</td>
<td>Threatened</td>
<td>Nest and roost in manmade structures</td>
</tr>
<tr>
<td>Birds</td>
<td>Least Bittern</td>
<td>Ixobrychus exilis</td>
<td>Threatened</td>
<td>Large, quiet marshes</td>
</tr>
<tr>
<td>Birds</td>
<td>Loggerhead Shrike</td>
<td>Lanius ludovicianus</td>
<td>Endangered</td>
<td>Large expanses of grasslands</td>
</tr>
<tr>
<td>Birds</td>
<td>Henslow’s Sparrow</td>
<td>Ammodramus henslowii</td>
<td>Endangered</td>
<td>Large expanses of grasslands</td>
</tr>
<tr>
<td>Taxonomy</td>
<td>Common Name</td>
<td>Scientific Name</td>
<td>OMNR Status</td>
<td>Habitat</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td>----------------------------</td>
<td>----------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Birds</td>
<td>Bobolink</td>
<td>Dolichonyx oryzivorus</td>
<td>Threatened</td>
<td>Large expanses of grasslands</td>
</tr>
<tr>
<td>Birds</td>
<td>Piping Plover</td>
<td>Charadrius melodus</td>
<td>Endangered</td>
<td>Large, undisturbed areas of shoreline</td>
</tr>
<tr>
<td>Reptiles</td>
<td>Snapping Turtle</td>
<td>Chelydra serpentina</td>
<td>Special Concern</td>
<td>Shallow waterbodies</td>
</tr>
<tr>
<td>Reptiles</td>
<td>Eastern Musk Turtle</td>
<td>Sternoterus odoratus</td>
<td>Threatened</td>
<td>Shallow, slow-moving water</td>
</tr>
<tr>
<td>Reptiles</td>
<td>Northern Map Turtle</td>
<td>Graptemysographica</td>
<td>Special Concern</td>
<td>Coastal wetlands</td>
</tr>
<tr>
<td>Reptiles</td>
<td>Blanding’s Turtle</td>
<td>Emydoidea blandingii</td>
<td>Threatened</td>
<td>Lakes, streams, and wetlands, with abundant vegetation</td>
</tr>
<tr>
<td>Reptiles</td>
<td>Spiny Softshell</td>
<td>Apalone spinifera</td>
<td>Threatened</td>
<td>Lakes, streams, and wetlands, with abundant vegetation</td>
</tr>
<tr>
<td>Reptiles</td>
<td>Eastern Ribbonsnake</td>
<td>Thamnophis sauritus</td>
<td>Special Concern</td>
<td>Wetland areas</td>
</tr>
<tr>
<td>Reptiles</td>
<td>Milksnake</td>
<td>Lampropeltis triangulum</td>
<td>Special Concern</td>
<td>Old fields and farm buildings</td>
</tr>
<tr>
<td>Fish</td>
<td>Lake Sturgeon</td>
<td>Acipenser fulvescens</td>
<td>Threatened</td>
<td>Bottoms of shallow areas of large freshwater lakes and rivers</td>
</tr>
<tr>
<td>Taxonomy</td>
<td>Common Name</td>
<td>Scientific Name</td>
<td>OMNR Status</td>
<td>Habitat</td>
</tr>
<tr>
<td>----------</td>
<td>------------------</td>
<td>----------------</td>
<td>-------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Molluscs</td>
<td>Eastern Pondmussel</td>
<td>Ligumia nasuta</td>
<td>Endangered</td>
<td>Bottoms of shallow areas of large freshwater lakes and rivers</td>
</tr>
<tr>
<td>Plants</td>
<td>Four-leaved Milkweed</td>
<td>Asclepias quadrifolia</td>
<td>Endangered</td>
<td>Alvar woodland</td>
</tr>
<tr>
<td>Plants</td>
<td>Ogden's Pondweed</td>
<td>Potamogeton ogdenii</td>
<td>Endangered</td>
<td>Bottoms of rivers</td>
</tr>
</tbody>
</table>

*Note:* Given the highly disturbed habitat found within the study area, the species listed above are not found on the site.

### 4.3 Recreation Resources

The study area includes open areas within Delhi Park which provide opportunities for many recreational uses including hiking, tobogganing, bicycling and there is also a dog park. The park is also the site for special events such as Canada Day celebrations and fireworks or concerts on various occasions.

### 4.4 Archaeology and Heritage Resources

An archaeological assessment of Delhi Park was conducted and submitted in February, 2015 as part of the preparation for this stormwater project. See appendix E for full report.

The study area encompasses Part Lots 21 and 22, Concession South East of the Carrying Place and a small section of Lot 24 Third Concession Military Tract in the Township of Hallowell, Prince Edward County. It consists of a large area of parkland located at the southeast edge of the Town of Picton (Figure 3). The land was patented early in the nineteenth century, Lot 24 in 1802 and Lots 21 and 22 in 1803. The park came into existence when the land was bought for that purpose by the Town of Picton in 1885. At that time Marsh Creek ran centrally through the park and was surrounded by large areas of marshland, which are clearly marked on the 1878 Belden map (Figure 8) and also on the 1947 soil map (Figure 9). The marsh was slowly filled in during the twentieth century with the last landfill activity occurring in 1979 (Water and Earth Science Associates Ltd. 1989).
The large portion of the property that was once covered by marsh is considered to have moderate to high archaeological potential as the perimeters of wetlands and any elevated area within them are areas of archaeological interest. As the locations of the perimeter and elevated areas are not known in relation to the present landscape due to landfill activities, the entire former marsh, and now landfill area, should be considered to have moderate to high potential for the presence of archaeological resources. The non-landfilled areas on the west side of the property, also meet the criteria for moderate to high archaeological potential, being in an area of early settlement, within 200 metres of a watercourse (Marsh Creek), on elevated land near a watercourse, and having previously identified archaeological resources in the immediate vicinity (MTC 2011).

Two cemeteries are known to have bordered on the study area. One is the active Glenwood Cemetery on the south and southeast; the other appears on the Belden map (Figure 8) at the south end of Chapel Street in an area that is now predominantly a parking lot. Land bordering on cemeteries is deemed to have high potential for the presence of archaeological remains.

As a result of the Stage 1 Archaeological Assessment and in concordance with the 2011 Standards and Guidelines for Consultant Archaeologists, Ground Truth Archaeology makes the following recommendations in regards the study area:

- Portions of the study area identified as having moderate to high archaeological potential (as shown on Figure 12, zone 1) require a Stage 2 Archaeological Assessment prior to ground disturbance consisting of a test pit survey at 5 metre intervals.
- Portions of the study area identified as having moderate to high archaeological potential within the landfill area (as shown on Figure 12, zone 2) require a Stage 2 Archaeological Assessment prior to ground disturbance consisting of mechanical excavation in order to reach and assess the original pre-landfill ground surface.
- For areas of ground disturbance located within 10 metres of the limits of the cemeteries (as shown on Figure 12, zone 3), a Stage 3 Archaeological Assessment should occur consisting of mechanical stripping of topsoil in order to identify grave shafts.

4.5 Environmental Inventory

Quinte Conservation staff conducted a Phase 1 – Environmental Site Assessment of the area as part of the environmental assessment process.
This phase one site assessment was intended to be a preliminary, non-intrusive assessment to review information about the past and current use of properties within the study area. The report was completed by a qualified individual with regard to the Ontario Regulation 153/04. The report included the following:

- A review of background information relevant to the site
- A review of historic records about the current and past land use
- Completion of relevant interviews
- Completion of a site reconnaissance survey
- Interpretation of the results of assessment and preparation of the following report in summary of the results

The area of study has been mapped as being located in a valley which originally included a large marsh area extending along the banks of Marsh Creek. Over time this marsh was filled in with waste from a local canning factory, municipal garbage, and construction materials. The landfill was closed in 1979 and redeveloped as a park with sports fields, walking trails and a dog park.

The Valley which the site is located in follows the path of a major fault line along the side of a limestone bedrock escarpment. This valley has been partially filled with sandy soils associated with an esker formation extending between Picton and West Lake. Review of Ontario water well records for the area confirmed the presence of sandy soils and fill material. Bedrock was reported at variable depths ranging from 9 to 28 metres below ground. The results of drilling and historic monitor wells indicated the water table to be at moderately shallow depths.

Land title records for the area were reviewed by an Ontario land surveyor which did not reveal significant clues about historic use of the site. However commercial, land use was identified along the western perimeter of the site and property title issues were identified for portions of the park. Other surrounding land use includes two cemeteries, and the former sewage treatment plant along the south and eastern perimeter of the property. A portion of the property presently contains a storm water pond that receives drainage from the urban area of the Town of Picton.

A review of historic maps and reports indicated that Delhi Park has been used as a dump site from approximately the early 1900s until 1979 when the site was closed. Other historic land use adjacent to the property included a former canning factory operated from the late 1800s to the 1930s. It was also discovered that a tannery once existed in the vicinity of one of the cemetery properties to the south of the site.
Interviews with relevant persons did not provide reports of any significant issues associated with the site other than the fact that the site is a closed landfill for which available information is limited.

Based on the results of the phase 1 assessment and historic use of the site and adjacent properties, it is recommend that a Phase 2 assessment be completed for any of the areas being considered as a potential location for future stormwater facilities.

4.6 Existing Infrastructure

There are two main stormwater outfalls that enter the Delhi Park area.

A 750mm pipe drains a 68 hectare sewershed (P1) entering the study area at Ferguson Street near Glenwood Cemetery. The pipe carries the stormwater past a spring fed pond near the Cemetery entrance and then opens to a small tributary that enters Marsh Creek about 650 metres up stream of York Street.

The stormwater from the 56 hectare sewershed (P2) is carried by a 1200mm concrete pipe from the Mary Street parking lot into Delhi Pipe. It originally went directly into Marsh Creek through the landfill area but the pipe began to collapse and in the 1990’s it was diverted to run along the edge of the park until it turns 90 degrees toward the creek and outleeting to Marsh Creek just upstream of the footbridge. At the same time a stormwater pond was built near York Street to help treat the baseflow and the first flush of stormwater before entering Marsh Creek. A small dam in the bottom of the 1200mm concrete pipe diverts flows into 300mm which conveys stormwater to a valve structure. There is a manhole cover over the valve. From the valve structure a 375mm pipe takes the stormwater to the stormwater pond. The pond has a forebay to help settle sediment and a secondary cell with wetland vegetation. A control structure was designed to hold the water level at a lower setting and retain water during a storm to a higher level in the pond before slowly releasing it into Marsh Creek about 25 metres upstream of York Street. The control structure over time has silted in and is no longer operating as designed. There is an emergency overflow structure about 120 metres upstream of York Street to prevent the elevation of the pond from reaching a critical level.

Sanitary sewers enter Delhi Park in several locations and merge into one pipe that crosses Marsh Creek under the footbridge. This pipe goes to the pumping station in the location of the former sewage treatment plant and then the sewage is pumped up to the new sewage treatment plant that is located off Church Street. The effluent from this plant is then returned to Marsh Creek just downstream of the footbridge.
5 PUBLIC, GOVERNMENT AND FIRST NATIONS AND MÉTIS NOTIFICATION AND CONSULTATION

At the advice of the Ministry of Aboriginal Affairs, the Chief of six local first nations were also directly mailed letters (Alderville First Nation, Curve Lake First Nation, Hiawatha First Nation, Kawartha Nishnawbe First Nation, Mississaugas of Scugog Island, and Mohawks of the Bay of Quinte). No correspondence was received from the first nations. In addition, multiple meetings took place with municipal staff. No other Provincial or Federal agencies were identified to have interest in the project. See Appendix C

6 IMPACTS

Impacts from the project can be either long term or short term and these are considered within the Decision Matrix. Long term impacts are not expected from this project. This project has been specifically developed to mitigate the water quality impacts from urbanization as a net environmental benefit. Social impacts could be possible if land use conflicts were to arise from the project. In this case public or private land could be impacted by a decision to devote large parcels of waterfront lands to water quality remediation.

The long term impacts are listed later in Section 6.3 and some discussion is included in how these are considered in the decision matrix.

Short term impacts are not specifically considered in the decision matrix, but a short discussion of these and their mitigation techniques is provided below. In all cases, the short term construction impacts can be mitigated and would not preclude any of the options under consideration.

6.1 Construction Impacts

Impacts due to construction are considered short term and these can be mitigated using normal construction techniques. Impacts may include:

Noise

Site excavations have revealed shallow bedrock conditions and construction activities would include breaking of rock using hydraulic percussion. Noise from the equipment should be limited to 7:00 AM to 7:00 PM.
Dust

Construction activities may release dust into the environment that can be disturbing to nearby residents. There are typical construction dust suppression practices including, street sweeping, washing of equipment, spraying traffic areas with water, mud mats etc. that will mitigate some nuisance dust. These are short term impacts.

Increased Traffic

The construction activities increase traffic on local roadways. This can accelerate the deterioration of local roadways and presents a nuisance to residents and possibly a safety concern. Increased traffic on the road is a short term impact and safety issues can be mitigated using standard traffic safety measures.

Open Excavations (Safety)

A construction site exposes the public to potential dangers to fall hazards or unstable excavations. Normal construction practices mitigate these dangers by employing signage and fencing, not leaving an unattended excavation, removing the danger as quickly as possible, and other standard safety practices. These are short term impacts and the dangers can be mitigated.

Sediment and Erosion

Open excavations and removal of topsoil can present opportunities for soil loss due to erosion. Eroded soil may be released into receiving waters (in this case the Bay of Quinte) and have a negative impact on fish, fish habitat and water quality. Typical mitigation techniques for control of sediment and minimization of erosion can be employed to reduce this risk. Stockpiles of aggregate or soil should be stabilized with silt fencing or other means to reduce mobilization of sediment. Work areas can be minimized to reduce loss of vegetated cover. Areas that have been disturbed should be quickly stabilized with an erosion resistant surface (including sod, erosion blanket etc).

Groundwater

Construction works can intercept the groundwater table and require dewatering. Trenching activities for the underground components as well as open excavations at Delhi Park may intercept the groundwater table.
There is a spring in the vicinity of the Glenwood Cemetery entrance that provides water into one of the two ponds in that area. The groundwater table will be considered in the final design of the facility.

7 STORMWATER TREATMENT FACILITIES

In order to evaluate potential solutions to the problem (untreated stormwater draining directly to the Bay of Quinte), a decision matrix was developed (as presented in Figure 3 below). The alternatives were made up of three primary components: level of treatment (as outlined in the MOE, 2003 Stormwater Management Planning and Design Manual, available online), facility or treatment type, and facility location. As this undertaking is considering a retrofit situation, only facilities at the 'End-of-pipe' were considered. End-of-pipe facilities are usually required for flood and erosion control and water quality improvement, although lot level and conveyance controls can reduce the size of the end-of-pipe. Lot level controls are not feasible for this project because the upstream lots are privately owned and outside of the study area. In this situation, the facility will be designed for the enhancement of water quality with consideration of water quantity as the discharge point is Marsh Creek which is subject to flooding in high flow situations. It is critical to design the facility so that high flows do not cause flooding or damage to the facility.

7.1 Water Quality Treatment

The Ministry of Environment Stormwater Management Guidelines (2003) utilizes three levels of water quality treatment within the design guidelines: basic, normal, and enhanced. The levels of protection are based on a general relationship between the long-term average (at least 10 years) of suspended solids removal and the lethal & chronic effects of suspended solids on aquatic life. Suspended solids, including both organic and inorganic matter, increase the turbidity (or decrease the clarity) of the receiving waterbody. This interferes with the photosynthetic activity of plants, can interfere with fish that rely upon sight for feeding, and can clog the gills of aquatic organisms. Sediment that settles may cover fish spawning areas and smother communities of organisms that live on the bottom of streams. The decay of organic matter exerts an oxygen demand that may severely depress the levels of dissolved oxygen in receiving waters (MOE, 2003). The water quality treatment methods are discussed below:

7.1.1 Basic Protection
Basic protection corresponds to the end-of-pipe storage volumes required for the long-term average removal of 60% of suspended solids. Generally, basic protection is
applied in areas where downstream aquatic habitat has adapted to high suspended solid loadings prior to anthropogenic changes to the watershed (i.e. urbanization or agricultural practices), and there is little short or long-term potential for rehabilitation.

7.1.2 Normal Protection
Normal protection corresponds to the end-of-pipe storage volumes required for the long-term average removal of 70% of suspended solids. Normal protection is considered when conditions for enhanced protection do not exist. Example habitats where normal protection may be appropriate include: areas with moderate, natural upstream sediment loads (such as some walleye feeding habitat); and spawning habitat less sensitive to suspended solids loadings (such as aquatic and emergent plant beds used by pike and perch).

7.1.3 Enhanced Protection
Enhanced protection corresponds to the end-of-pipe storage volumes required for the long-term average removal of 80% of suspended solids. Enhanced protection is used when sensitive aquatic habitat will be impacted by end-of-pipe discharge. Generally this will include receiving waters that have aquatic communities that have adapted to a low suspended solids environment. Conditions where enhanced protection should be used include: areas with high permeability soils, habitat sensitive to sediment and siltation (such as gravel bottom used for bass or brook trout spawning); high baseflow discharge areas (such as groundwater upwellings important to brook trout); low upstream sediment loads resulting in clear surface water important to maintaining habitat for sight feeding fish species (such as bass, northern pike, lake trout, and brook trout); and low pre-development erosion characteristics (such as dense vegetation, or erosion resistant soils).

7.1.4 Water Quantity
The facility will be designed to bypass high flow events and convey them safely to Delhi Creek (untreated).

7.2 Facility (Treatment) Types
As this undertaking is considering a retrofit situation, only facilities at the 'End-of-pipe' were considered. The following represents a list of facility types that were considered through the decision matrix developed for the project:

- **Wet Pond** – A wet pond is a basin which has standing water called dead storage. The dead storage allows pollutants to settle quiescently. During a storm event, the runoff collects in the wet pond and is slowly discharged over a
period of a day(s). It is different from a dry pond in that it maintains a permanent pool of water between storm events.

- **Constructed Wetland** – A constructed wetland has standing water and wetland vegetation. A constructed wetland treats stormwater by allowing quiescent settling of pollutants and can biologically remove pollutants by nutrient uptake from the vegetation. Wetlands are typically shallower than wet ponds. In contrast to wet ponds, constructed wetlands are dominated by shallow zones (less than 0.5 m). Because of their shallow depth, constructed wetlands are more land intensive than wet ponds.

- **Hybrid Wet Pond/Wetland** – As the name suggests, these facility types are made up of a deep open water cell followed by a shallow water wetland element.

- **Subsurface Flow Wetland** – Water is treated by travelling through a saturated gravel bed of about 1 metre in depth, which is covered by soil and wetland vegetation. These facilities have the appearance of a meadow of wetland plants, with no permanent open water. These facilities require less land than a conventional constructed wetland, and allow biological activity to remove excess nutrients.

- **Oil/Grit Separators** – An oil/grit separator (OGS) is a pre-fabricated structure which is installed underground. OGS’ are used to trap & retain oil and sediment in detention chambers by quiescent settling or dynamically removing pollutants. OGS have been used for industrial and commercial sites, and large parking areas or transit facilities where there is sediment build-up and a higher risk of spills.

- **Oil/Grit Separator + Wet pond** – The OGS plus wet pond represent using the two aforementioned treatment technologies in series. The OGS unit acts as pre-treatment for the wet pond by removing the larger sediment particles. The wet pond will require less frequent maintenance since the OGS unit will prevent a large portion of the sediment from entering the pond. Given the enhanced sediment removal, the footprint of the wet pond cell is accordingly reduced.

- **Dunkers** – This system is located in the water instead of on land, with floating pontoons holding curtains that are anchored to the bottom with weights. The curtains direct and slow the flow of the stormwater through treatment “cells” which are created by the curtains. As stormwater travels along the flow path created by the curtains, sediment quiescently settles to the bottom before the water is released into the waterway.

- **Dry Pond** – A dry pond is a detention basin designed to temporarily store collected stormwater runoff and release it at a controlled rate through an outlet.
Dry ponds may have a deep pool of water in the sediment forebay to reduce scour and resuspension of sediment, but do not have a permanent pool of water in the main basin. This means that there is no opportunity for settling of contaminants between storm events and dilution of stormwater contaminants during storms. Therefore, although dry ponds can be effective for erosion and flood control, they do not perform as well as wet ponds for water quality control.

7.3 Facility Locations

Two facility locations were considered through the decision matrix as they provided vacant property within a feasible distance of the existing stormwater outfall.

7.4 Facility Sizing

A preliminary sizing was completed for the purpose of determining land or topographic constraints for the various technologies in each potential location within the study area. The following contains a brief summary of the land area required. This information was overlaid on potential locations within the four quadrants identified above and locations that could not support the size requirement were removed from further consideration. For the hydrology report see Appendix F.

7.5 Decision Matrix Criteria

The decision matrix was developed by reviewing environmental assessment documents, staff experience, and through consultations with both the public and Prince Edward County’s Engineering Services department. The following list provides details of the different considerations placed on each facility type, within each of the four proposed quadrants:

- **Construction Cost** – Property acquisition cost, bedrock excavation, contaminated soil removal, and any required, existing, or conflicting infrastructure.

- **Potential Water Quality Benefit** - Level of treatment (total suspended solids removal) from the Ministry of Environment Stormwater Management Guidelines.

- **Compatibility with Immediate and Adjacent Land-use** – Aesthetics, local recreation, Bay of Quinte, use/loss of parkland, adjacent property values, current property zoning, and social impact.
- **Operation and Maintenance (O/M)** – Person hours to perform maintenance, frequency of maintenance, equipment required, and phosphorus technology implementation.

- **Safety Objectives** – restricting public access, facility side slopes, signage, vectors (i.e. Biting insects, and rats).

- **Potential Habitat Benefit** - Change in vegetation cover, natural area gain or loss.

Staff acquired cost estimates for land acquisition through the review of local real estate transactions, and the cost of rock excavation & contaminated soil removal through the review of recently completed projects within the County of Prince Edward. In order to determine the footprint size of each facility and thus the relative cost of each facility type, Quinte Conservation staff performed preliminary sizing calculations using the Ministry of Environment Stormwater Management guideline.

The following point spread and importance factors were determined to be appropriate by Conservation and Municipal staff involved (See Table 6):

**Table 4: Decision Matrix for choosing the preferred alternative, with the highest scoring alternatives highlighted for convenience.**

For full report please see Appendix...

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weighting Factor</th>
<th>OGS + Wet pond for Individual Drainage Areas P1 and P2</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score of 0 to 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Quality Benefit</td>
<td>35%</td>
<td>3</td>
<td>-Achieves level 1 water quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-Not a significant drinking water threat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(individual drainage)</td>
</tr>
</tbody>
</table>
| Capitol Cost- Construction and Operation and Maintenance Costs | 20% | 3 | areas < 100 ha)  
- Regular maintenance will ensure optimum performance and removal  
-Small foot print requires less soil removal  
- Able to utilize existing ponds which also saves costs  
-Small foot print provides less potential for encouraging contaminated soil  
-$3.3M (excavation, liner, land acquisition, 50 year life cycle costs) |
| Immediate and Adjacent Landuse Compatibility | 20% | 3 | -Due to small foot print able to fit in existing area without significant impact on the landscape or existing features  
-OGS can be installed below future parking lot  
-Minimal impact on adjacent land uses |
| Operations and Maintenance | 15% | 1 | -Requires at least annual maintenance but cost is lower than other options  
-Associated ponds will require regular |
7.6 Questions Received from the Public about the Facility Types

The decision matrix criteria (facility types, locations, and point spread/importance factors) were presented to the public during the Public Information Centre, and some valid questions and comments were received. There was general support for improving the water quality with an improvement to the stormwater treatment in Delhi Park. The questions (Q) and comments (C) submitted by the public are summarized below:

**Water Quality Improvement**

- **C.** I would support increasing the size of the existing pond near York Street and perhaps making it wind more so that there would be more filtration from the vegetation.

- **C.** We need to find ways of not polluting our water by using different products and stopping the use of pesticides, raising the consciousness of people.

- **C.** More needs to be done – Climate change will make a huge difference in how we have to take care of water. Raise awareness.

- **C.** After years of study/monitoring of Marsh Creek, I would have anticipated there would have been historical data on the water quality to substantiate that the stormwater discharge is in fact a major contributor. The creek flows through not what you would call a pristine environment. Data at the open house would have been beneficial to educate the public.

**The Preferred Solution**
• Q. It appears like a good idea but the cost is a concern so who will pay?
• C. Yes it has to be done so just do it.
• C. We have to look at water as “the commons”. It belongs to all of us. We all have to pay for it, protect it and preserve it.
• C. Two ponds – Yes. Oil/grit separators, assuming they are installed upstream of the ponds and are appropriately sized – Yes.
• C. Glenwood pond needs to be designed as twin cell
  o Upper cell needs to receive only groundwater flow that current feeds the pond.
  o Lower cell to receive discharge from the stormwater pipe to provide additional safeguard of pond water quality.

Decision Matrix

• Q. Quality benefit: petroleum removal?
• Additional Comments and Questions
  • Q. Are you certain of the divide between the 2 drainage catchments? From an incident in the 1980’s I was of the understanding that Main Street west of Talbot/Lake storm drainage continued easterly along Main, not southerly toward Marsh Creek.
  • Q. Has the volume of groundwater flow through the Glenwood pond been monitored in order to account for this in the proposed stormwater management pond?

7.7 A. The new facility will be constructed in a fashion which excludes groundwater infiltration (i.e. a clay lining) in order to avoid any potential cross contamination.

Final Decision Matrix

The public generally agreed with the criteria developed for the decision matrix, including the proposed locations and the point spreads/importance factors. Staff utilized the criteria presented to the public and incorporated public feedback to assign scores to each facility type (in each of the four proposed quadrants) which lead to the development of the final decision matrix shown below in Figure 3. The philosophy for evaluating alternatives was to strive for a Level 1 (Enhanced) treatment and to downgrade to lower levels of treatment if Level 1 was not feasible. Available land area was used to pre-screen the alternatives. Any alternatives that passed the pre-screening process were evaluated in the decision matrix.
8 THE PREFERRED SOLUTION

As Figure 3 above illustrates, the ‘Do Nothing’ approach yielded a 1.35 score as there was no improvement to the stormwater treatment. A discussion of the other potential options is outlined below:

Central Wet Pond for both outfalls

This option scored second lowest (1.625) for several reasons. The cost and inference with the use of the park results in a lower score. The MOECC was not supportive of putting a pond on a former landfill site.

Central Dry Pond for both outfalls

This option was given a score of 2.1 out of 3 primarily because it is not a very effective for water quality treatment and had a relatively high cost.

Central Constructed Wetland for both outfalls

The score for this option was 2.25. It was determined that the capital and construction costs would be significant because of geotechnical work, realigning the creek, infrastructure and land acquisition. Also there would be challenges with approvals for a wetland over a former landfill site.

Two Wet Ponds at the existing location

This approach scored the second highest at 2.625. The water quality benefit ranked 2.5 out of 3.

Oil Grit Separators and Wet Pond for Individual Drainage Area P1 and P2

This alternative scored the highest with a score of 2.7. All factors scored a 3 out of 3 except for the operations and maintenance requirements.

8.1 The Preferred Solution

The preferred solution is the Oil Grit Separators and Wet Pond for Individual Drainage Areas P1 and P2. It is the most cost effective measure for installation and maintenance over the long term and provides the best improvement to water quality.

The selection of a technology that reduces the footprint of the solution also reduces short term construction impacts as well as eliminates any land use conflict. Lands
owned by the County are still available for future development as a public recreational area. The cost of the solution is much less than other options and therefore monies that have been set aside for stormwater mitigation can potentially become available for other remediation opportunities.

9 IN CONCLUSION

The preferred solution will involve the installation of an underground unit that is designed to separate oil and grit from the stormwater input. New stormwater sewer piping will need to be constructed to connect the facility. The installation of an OGS unit will require the excavation of a large cavity, upstream of the wet ponds. This procedure will cause temporary noise, dust, and vibration concerns. The construction will not involve impacting any existing natural features as the unit can be placed within a very small footprint that will not conflict with other land uses (see Figure 4). Increasing the size of the existing ponds and improvements to their design will require some excavation and the installation of control structures. Standard construction techniques and mitigation practices can be utilized for this project. Potential exists for the installation of educational signage due to the proximity of the new facilities in Delhi Park.

As suggested in the Phase 1 Archeological Report, further investigation will be required once the final location of the facility is determined through detailed engineering. In addition, sampling of the excavated material and proper disposal at a registered waste facility has been recommended through the Phase 1 Environmental Site Assessment.

There are many types of oil and grit separator units. The County of Prince Edward will determine the appropriate type through experience, detailed engineering design
requirements, water quality benefits and budgeting constraints.

Figure 4: Example OGS Unit as constructed
REFERENCES

German, M., Koechlin, M.. 1993. The Big Clean-up- Bay of Quinte Remedial Action Plan: Time To Act Stage 2 Report. Trenton, Ontario, Canada, Bay of Quinte Rap Coordinating Committee with input and assistance granted by the Bay Of Quinte Public Advisory Committee. 257p


APPENDICES
APPENDIX A-1

Photographic record of the project study area

Figure 2 Delhi Park
APPENDIX A-2

Photographic record of the project study area

Figure 3 Delhi Park
APPENDIX A-3

Photographic record of the project study area

Figure 4 Existing stormwater management pond in Delhi Park

Quinte Conservation
Municipal Class Environmental Assessment- Schedule B
February 24, 2017
APPENDIX A-4

Photographic record of the project study area

Figure 5 Marsh Creek
APPENDIX B - 1

Record of newspaper ads

NOTICE
PUBLIC INFORMATION OPEN HOUSE
Delhi Park – Stormwater Outfall Remediation
Town of Picton, Prince Edward County

DATE
Thursday, January 26, 2017

LOCATION
Elks Hall, 21 Elks Street, Picton  K0K 2T0

TIME
2pm to 4pm and 6pm to 8pm

A Public Information Centre will be held on Thursday, January 26, 2017 to discuss proposed improvements to the two Delhi Park Stormwater Outfalls. The project aims to improve water quality using conventional approaches to treat the stormwater – which currently drains, untreated, directly into Marsh Creek and then to Picton Bay (Bay of Quinte). The project is a cooperative effort between Environment Canada’s Great Lakes Sustainability Fund, Ministry of the Environment’s Canada-Ontario Agreement for the Great Lakes, The County of Prince Edward, and Quinte Conservation Authority. The format will be ‘Open House’ and you are invited to drop in anytime between 2pm and 4pm or 6pm and 8pm. Information boards will be on display and representatives from Quinte Conservation will be available to answer questions and provide information.

For more information:
Christine McClure
Water Resources Manager, Quinte Conservation
(613) 968-3434 ext. 130
cmclure@quinteconservation.ca

Figure 6 Notice of public information open house for Delhi Park
APPENDIX B - 2

Record of newspaper ads

Figure 7 Notice of public information open house for Delhi Park
10 APPENDIX B - 3

Record of newspaper ads

NOTICE OF STUDY COMPLETION
SCHEDULE B CLASS ENVIRONMENTAL ASSESSMENT
Delhi Park - Stormwater Outfall Remediation
Town of Picton, Prince Edward County

The project aims to improve water quality using conventional approaches to treat the stormwater, which currently drains, untreated, directly into Marsh Creek and then to Picton Bay (Bay of Quinte). The project is a cooperative effort between Environment Canada's Great Lakes Sustainability Fund, Ministry of the Environment's Canada-Ontario Agreement for the Great Lakes, The County of Prince Edward, and Quinte Conservation Authority.

The decision matrix for the undertaking has determined that the use of an underground oil and grit separator unit in conjunction with a wet pond at the two existing locations will best address the concerns of the public while improving water quality within the Bay of Quinte. Project plans and other information can be viewed at the following location:

Quinte Conservation
2061 Old Highway 2
Belleville, ON
K8N 4Z2
Monday to Thursday: 8:30am – 4:30pm
Friday: 8:30am to 4:00pm
Phone: (613) 968-3434

Interested persons should provide written comment to Quinte Conservation within 30 calendar days from the date of this Notice. Comment should be directed to:

Tim Trustham
Ecologist and Planner
Quinte Conservation
2061 Old Highway 2
Belleville, ON
K8N 4Z2
Phone: (613) 968-3434 ext. 110
Email: trustham@quinceconservation.ca

If concerns arise regarding this project which cannot be resolved in discussion with the Conservation Authority and Prince Edward County, a person or party may request that the Minister of the Environment make an order for the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order), which addresses individual environmental assessments. Requests must be received by the Minister at the address below within 30 calendar days of this Notice. A copy of the request must also be sent to the Conservation Authority. If there is no request received by March 13, 2017 the project will proceed to design and construction as presented in the planning documentation.

Minister of the Environment
135 St. Clair Avenue, 10th Floor
Toronto, ON
M4V 1P5

This Notice issued on February 8, 2017
T. Trustham, Ecologist and Planner, Quinte Conservation

Figure 8 Public notice of study completion for Delhi Park
APPENDIX B - 4

Copies of PIC display boards, copies of sign-in sheets, copies of public comment sheets

Figure 9 Delhi Park- public open house
APPENDIX B - 5

Copies of PIC display boards, copies of sign-in sheets, copies of public comment sheets

Figure 10 Delhi Park- public open house
APPENDIX B - 6

Copies of PIC display boards, copies of sign-in sheets, copies of public comment sheets

Delhi Park Stormwater Outfall Remediation Comment Form

Do you agree that improving the quality of water that runs from the Town of Pletum into Pletum Bay is a valuable project?

PLEASE CIRCLE ONE: YES / NO

Comments:

Do you support the preferred solution? Why

PLEASE CIRCLE ONE: YES / NO

Comments:

Please provide any additional comments which have not been previously addressed

www.quinteconservation.ca

Quinte Conservation
Municipal Class Environmental Assessment- Schedule B
February 24, 2017
APPENDIX B -7

Copies of PIC display boards, copies of sign-in sheets, copies of public comment sheets

Delhi Park Stormwater Outfall Remediation
Comment Form

Name (optional):

E-mail (optional):

Do you agree that improving the quality of water that runs from the Town of Picton into Picton Bay is a valuable project?  

PLEASE CIRCLE ONE: YES / NO

Comments:

Do you support the preferred solution? Why

PLEASE CIRCLE ONE: YES / NO

Comments:  

www.quinteconservation.ca

Quinte Conservation  Municipal Class Environmental Assessment- Schedule B
February 24, 2017
APPENDIX B-8

Copies of PIC display boards, copies of sign-in sheets, copies of public comment sheets

Delhi Park Stormwater Outfall Remediation
Comment Form

Name (optional):

E-mail (optional):

Do you agree that improving the quality of water that runs from the Town of Picton into Picton Bay is a valuable project?

PLEASE CIRCLE ONE: YES / NO

Comments:

[Handwritten comments]

Do you support the preferred solution? Why

PLEASE CIRCLE ONE: YES / NO

Comments:

[Handwritten comments]

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APPENDIX B – 9.1
Copies of PIC display boards, copies of sign-in sheets, copies of public comment sheet

Delhi Park Stormwater Outfall Remediation Comment Form

Name (optional): Roger Bryant
E-mail (optional):

Do you agree that improving the quality of water that runs from the Town of Picton into Picton Bay is a valuable project?

PLEASE CIRCLE ONE: YES / NO

Comments:
After years of study/monitoring of Marsh Creek, I would have anticipated the water quality issue would have been historic due to the large areas of impervious surfaces. In fact, a major contributor to the creek flows, thus not what you'd call a pristine environment. The data of this meeting would have been beneficial to the public.

Do you support the preferred solution? Why

PLEASE CIRCLE ONE: YES / NO

Comments:
a) two storm ponds - yes
b) added separators; assuming they are installed upstream - yes

c) Adjusted pond needs to be designed as twin cell
   "upper" cell to receive only overflow that currently feeds the pond
   "lower" cell to receive discharge from stormwater
   pipe to ensure that pond provides additional protection of pond water quality.

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Municipal Class Environmental Assessment- Schedule B
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APPENDIX B-9.2

Copies of PIC display boards, copies of sign-in sheets, copies of public comment sheets

Do you support the decision matrix criteria?

PLEASE CIRCLE ONE: YES / NO

Comments:

Please provide any additional comments which have not been previously addressed

A) Are you certain of the “divide” between the 2 drainage catchments? From an incineration earlier in the project, I was of the understanding that Main St went east at Tebo and the storm drainage continued eastern along Main - no east/west to word March Creek.

B) Has the stormwater flow through the Greenard pond been maintained in order to account for this volume in the proposed stormwater management plan?

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APPENDIX B-10

Copies of PIC display boards, copies of sign-in sheets, copies of public comment sheet
APPENDIX B-10.1

Copies of PIC display boards, copies of sign-in sheets, copies of public comment sheet
APPENDIX C-1

Copies of correspondence received from First Nations and local property owners

January 18, 2017

Alderville First Nation - Administration Office
11686 2nd Line Road
P.O. Box 48
Alderville, ON
KOK 2X0

Dear Alderville First Nation Council,

Quinte Conservation continues to cooperate with other levels of government (Environment Canada’s Great Lakes Sustainability Fund, Ministry of Environment’s Canada-Ontario Agreement for the Great Lakes, and The County of Prince Edward) toward the ‘clean up’ the Bay of Quinte.

One of the pollution sources for the Bay is urban run-off, typically called ‘stormwater’. Stormwater is known to contain elevated levels of sediment, nutrients, heavy metals, oils, road salts, pesticides, and bacteria. Currently, stormwater flows untreated from the urban area of the Town of Picton (Prince Edward County) directly into Picton Bay (the Bay of Quinte).

Please accept this letter as an invitation to attend the Delhi Park Stormwater Outfall Remediation open house. This project is being planned under Schedule B of the Municipal Class Environmental Assessment. The study is illustrated in the map below:

Delhi Park Open House
Thursday, January 26, 2017
2:00pm-4:00pm
and
6:00pm-8:00pm
Elks Lodge
21 Elks St, Picton, ON K0K 2T0

For further information regarding this project, please contact Terry Murphy, General Manager, 2061 Old Highway #2, RR #2, Belleville, ON, K8N 4Z1; by phone: (613) 968-3434 x 103 or by email at tmurphy@quinteconservation.ca

Thank you for your interest,

Terry Murphy

Quinte Conservation
Municipal Class Environmental Assessment- Schedule B
February 24, 2017
APPENDIX C-2

Copies of correspondence received from First Nations and local property owners

Bay of Quinte Remedial Action Plan
Lower Trent Conservation
714 Murray St
RR1, Trenton, ON K8N 5P4

January 18, 2017

Dear Anne Anderson,

Quinte Conservation continues to cooperates with other levels of government (Environment Canada’s Great Lakes Sustainability Fund, Ministry of Environment’s Canada-Ontario Agreement for the Great Lakes, and The County of Prince Edward) toward the ‘clean up’ the Bay of Quinte.

One of the pollution sources for the Bay is urban run-off, typically called ‘stormwater’. Stormwater is known to contain elevated levels of sediment, nutrients, heavy metals, oils, road salts, pesticides, and bacteria. Currently, stormwater flows untreated from the urban area of the Town of Picton (Prince Edward County) directly into Picton Bay (the Bay of Quinte).

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[Map of Delhi Park Stormwater Outfall Remediation]

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Thursday, January 26, 2017

2:00pm - 4:00pm
and
6:00pm - 8:00pm
Elks Lodge
21 Elks St, Picton, ON K0K 2T0

For further information regarding this project, please contact Terry Murphy, General Manager, 2061 Old Highway # 2, RR # 2, Belleville, ON, K8N 4Z2; by phone: (613) 968-3434 x 103; or by email at tmurphy@quinteconservation.ca

Thank you for your interest,

Terry Murphy
APPENDIX C-3

Copies of correspondence received from First Nations and local property owners

January 18, 2017

Curve Lake First Nation
22 Wincookeeda Road
Curve Lake, ON
K0L 1R0

Dear Curve Lake First Nation Council,

Quinte Conservation continues to cooperate with other levels of government (Environment Canada's Great Lakes Sustainability Fund, Ministry of Environment's Canada-Ontario Agreement for the Great Lakes, and The County of Prince Edward) toward the 'clean up' the Bay of Quinte.

One of the pollution sources for the Bay is urban run-off, typically called 'stormwater'. Stormwater is known to contain elevated levels of sediment, nutrients, heavy metals, oils, road salts, pesticides, and bacteria. Currently, stormwater flows untreated from the urban area of the Town of Picton (Prince Edward County) directly into Picton Bay (the Bay of Quinte).

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Thursday, January 26, 2017
2:00pm- 4:00pm
and
6:00pm-8:00pm
Elks Lodge
21 Elks St, Picton, ON K0K 2T0

For further information regarding this project, please contact Terry Murphy, General Manager, 2061 Old Highway # 2, RR # 2, Belleville, ON, K8N 4Z2; by phone: (613) 968-3434 x 103; or by email at tsmurphy@quinteconservation.ca

Thank you for your interest,

Terry Murphy

Quinte Conservation
Municipal Class Environmental Assessment- Schedule B
February 24, 2017
APPENDIX C-4

Copies of correspondence received from First Nations and local property owners

Quinte Conservation

clean world. safe homes. healthy life.

613-968-3434 Belleville
613-354-3312 Napanee
RR2, 2061 Old Hwy 2,
Belleville, ON, K8N 4Z2

January 18, 2017

Glenwood Cemetery
47 Ferguson Street,
Picton, ON
K0K 2T0

Sandy LatchMont:

Quinte Conservation continues to cooperate with other levels of government (Environment Canada's Great Lakes Sustainability Fund, Ministry of Environment's Canada-Ontario Agreement for the Great Lakes, and The County of Prince Edward) toward the 'clean up' the Bay of Quinte.

One of the pollution sources for the Bay is urban run-off, typically called 'stormwater.' Stormwater is known to contain elevated levels of sediment, nutrients, heavy metals, oils, road salts, pesticides, and bacteria. Currently, stormwater flows untreated from the urban area of the Town of Picton (Prince Edward County) directly into Picton Bay (the Bay of Quinte).

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2:00pm-4:00pm and 6:00pm-8:00pm
Elks Lodge
21 Elks St, Picton, ON K0K 2T0

For further information regarding this project, please contact Terry Murphy, General Manager, 2061 Old Highway # 2, RR # 2, Belleville, ON, K8N 4Z2; by phone: (613) 968-3434 x 103; or by email at tmurphy@quinteconservation.ca

Thank you for your interest,

Terry Murphy

QuinteConservation.ca | QuinteSourceWater.ca
APPENDIX C-5

Copies of correspondence received from First Nations and local property owners

Hiwatha First Nation
123 Paushah Street, R.R. # 2
Keeke, ON
K0L 2G0

Dear Hiwatha First Nation Council,

Quinte Conservation continues to cooperate with other levels of government (Environment Canada's Great Lakes Sustainability Fund, Ministry of Environment’s Canada-Ontario Agreement for the Great Lakes, and The County of Prince Edward) toward the 'clean up' the Bay of Quinte.

One of the pollution sources for the Bay is urban run-off, typically called 'stormwater'. Stormwater is known to contain elevated levels of sediment, nutrients, heavy metals, oils, road salts, pesticides, and bacteria. Currently, stormwater flows untreated from the urban area of the Town of Picton (Prince Edward County) directly into Picton Bay (the Bay of Quinte).

Please accept this letter as an invitation to attend the Delhi Park Stormwater Outfall Remediation open house on January 26, 2017 from 2pm-4pm and 6pm-8pm. This project is being planned under Schedule B of the Municipal Class Environmental Assessment. The study is illustrated in the map below:

For further information regarding this project, please contact Terry Murphy, General Manager, 2061 Old Highway # 2, RR # 2, Belleville, ON, K8N 4Z2; by phone: (613) 968-3434 x 103; or by email at tmurphy@quinteconservation.ca

Thank you for your interest,

Terry Murphy

January 18, 2017
APPENDIX C-6

Copies of correspondence received from First Nations and local property owners

Kawartha Nishnawbe First Nation
P.O. Box 1432
Lakefield, ON
KOL 2H0

January 18, 2017

Dear Kawartha Nishnawbe First Nation Council,

Quinte Conservation continues to cooperate with other levels of government (Environment Canada’s Great Lakes Sustainability Fund, Ministry of Environment’s Canada-Ontario Agreement for the Great Lakes, and The County of Prince Edward) toward the ‘clean up’ the Bay of Quinte.

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Thursday, January 26, 2017
2:00pm-4:00pm and
6:00pm-8:00pm
Elks Lodge
21 Elks St, Picton, ON KOK 2T0

For further information regarding this project, please contact Terry Murphy, General Manager, 2061 Old Highway # 2, RR # 2, Belleville, ON, K8N 4Z2; by phone: (613) 968-3434 x 103; or by email at tmurphy@quinteconservation.ca

Thank you for your interest.

Terry Murphy

Quinte Conservation
Municipal Class Environmental Assessment- Schedule B
February 24, 2017
APPENDIX C-7

Copies of correspondence received from First Nations and local property owners

Ministry of Indigenous Relations and Reconciliation
160 Bloor Street East
4th Floor
Toronto, ON
M7A 2E6

Dear Michael MacPherson,

Quinte Conservation continues to cooperate with other levels of government (Environment Canada's Great Lakes Sustainability Fund, Ministry of Environment's Canada-Ontario Agreement for the Great Lakes, and The County of Prince Edward) toward the 'clean up' the Bay of Quinte.

One of the pollution sources for the Bay is urban run-off, typically called 'stormwater'. Stormwater is known to contain elevated levels of sediment, nutrients, heavy metals, oils, road salts, pesticides, and bacteria. Currently, stormwater flows untreated from the urban area of the Town of Picton (Prince Edward County) directly into Picton Bay (the Bay of Quinte).

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**Delhi Park Open House**
Thursday, January 26, 2017
2:00pm- 4:00pm and 6:00pm-8:00pm
Elks Lodge
21 Elks St, Picton, ON K0K 2T0

For further information regarding this project, please contact Terry Murphy, General Manager, 2061 Old Highway # 2, RR # 2, Belleville, ON, K8N 4Z2; by phone: (613) 968-3434 x 103; or by email at tmurphy@quinteconservation.ca

Thank you for your interest,

Terry Murphy

Quinte Conservation
Municipal Class Environmental Assessment- Schedule B
February 24, 2017
APPENDIX C-8

Copies of correspondence received from First Nations and local property owners

January 18, 2017
Mississaugas of Scugog Island
22521 Island Road
Port Perry, ON
L1L 1B6

Dear Mississaugas of Scugog Island First Nation Council,

Quinte Conservation continues to cooperate with other levels of government (Environment Canada's Great Lakes Sustainability Fund, Ministry of Environment's Canada-Ontario Agreement for the Great Lakes, and The County of Prince Edward) toward the 'clean up' the Bay of Quinte.

One of the pollution sources for the Bay is urban run-off, typically called 'stormwater'. Stormwater is known to contain elevated levels of sediment, nutrients, heavy metals, oils, road salts, pesticides, and bacteria. Currently, stormwater flows untreated from the urban area of the Town of Picton (Prince Edward County) directly into Picton Bay (the Bay of Quinte).

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Thank you for your interest.

Terry Murphy

Quinte Conservation
Municipal Class Environmental Assessment- Schedule B
February 24, 2017
APPENDIX C-9

Copies of correspondence received from First Nations and local property owners

January 18, 2017

Dear Shannon Kelly,

Quinte Conservation continues to cooperate with other levels of government (Environment Canada’s Great Lakes Sustainability Fund, Ministry of Environment’s Canada-Ontario Agreement for the Great Lakes, and The County of Prince Edward) toward the ‘clean up’ the Bay of Quinte.

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For further information regarding this project, please contact Terry Murphy, General Manager, 2061 Old Highway # 2, RR # 2, Belleville, ON, K8N 4Z2; by phone: (613) 968-3434 x103; or by email at tmurphy@quinteconservation.ca

Thank you for your interest,

Terry Murphy

Quinte Conservation
Municipal Class Environmental Assessment- Schedule B
February 24, 2017
APPENDIX C-10

Copies of correspondence received from First Nations and local property owners

Indigenous and Northern Affairs Canada
26 St. Clair Avenue East
6th Floor
Toronto, ON
M4T 1M2

Dear Anne Scotia,

Quinte Conservaton continues to cooperate with other levels of government (Environment Canada’s Great Lakes Sustainability Fund, Ministry of Environment’s Canada-Ontario Agreement for the Great Lakes, and The County of Prince Edward) toward the ‘clean up’ the Bay of Quinte.

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Thank you for your interest,

Terry Murphy

QuinteConservation.ca | QuinteSourceWater.ca | f
APPENDIX C-11

Copies of correspondence received from First Nations and local property owners

Quinte Conservation

The County
332 Picton Main Street
Picton, ON K9K 2T0

613-968-3434 Belleville
613-354-3312 Napanee

January 18, 2017

Dear Kim White,

Quinte Conservation continues to cooperate with other levels of government (Environment Canada’s Great Lakes Sustainability Fund, Ministry of Environment’s Canada-Ontario Agreement for the Great Lakes, and The County of Prince Edward) toward the ‘clean up’ the Bay of Quinte.

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Thank you for your interest,

Terry Murphy

Delhi Park Open House
Thursday, January 26, 2017
2:00pm - 4:00pm
and
6:00pm - 8:00pm

Elks Lodge
21 Elks St, Picton, ON K9K 2T0

Quinte Conservation
Municipal Class Environmental Assessment- Schedule B
February 24, 2017
APPENDIX D

Land surveyors compiled parcel fabric map and title records
Quinte Conservation
2061 Old Highway No. 2
Belleville, Ontario
K8N 4Z2
Att: Tim Trustham

RE: Delhi Park - Picton

Dear Mr. Trustham;

As requested, we have completed a title search on the Delhi Park and surrounding lands in the Town of Picton. I have reviewed the abstracts from the crown patent forward and have seen no obvious areas of concern from major development/contamination from the titles. I would recommend that you speak with someone in the Town of Picton to obtain the history of the area, as we have heard rumours of a canning factory, the park being the location of the city dump, and boats that could sail from the Bay of Quinte into the Marsh Creek at one time.

Existing today are two large cemetery's that have been on title since the late 1800's and abut the south and south east portion of your study area. The lands to the west are mostly commercial, residential, a large church property and Town parking. To the east and running alongside the Lalor Street entrance to Delhi Park is a former sewage treatment plant that has been reduced in size and contains a fenced pumping station enclosure. The only area of concern to you currently, may be the Automotive Tire Shop and SWMR auto repair shop located on the south side of Mary/York Streets, at the north limit of your study area.

The title search itself revealed many property title issues that would need to be cleared up with legal council including a large section of Delhi Park itself which does not have ownership.

The attached search summary contains a more detailed list of each individual parcel.

Yours truly,

[Signature]
Keith Watson
Ontario Land Surveyor

SURVEY RECORDS
SURVEYING THE QUINTE AREA FOR OVER FIFTY YEARS
SEARCH SUMMARY

STUDY AREA:

55065-0116 (R) - Ownership not clear
See reference plans 47R-2683, 47R-2362, 47R-6620. Together with Right of Way PE143415.
Note: Appears this parcel may be owned by Town of Picton. Will need to have ownership verified by lawyer. This parcel surrounds two mechanical garages, "SWMR" auto repair shop and a vehicle tire shop. Easements on title that may affect parcel, PE108477-sewer/water lines and PE119739-Centra Gas.

55065-0319 – The Corporation of the Town of Picton
PART 7, 47R-2092, subject to Centra Gas Ontario Inc. easement as in document PE119739.
Note: Located at the north portion of your study area. Boundary well established by PART 7, 47R-2092.

55065-0332 – Public Authority Having Jurisdiction
Part 2, Plan 47R-2335
Note: A small parcel of land within your study area. (described as part of the road allowance, should acquire a deed to Town of Picton)?

55065-0099 – The Municipal Corporation of the Town of Picton & The Corporation of the Town of Picton
Subject to a Lease to Prince Edward Lodge No. 18.
See reference plans 47R-2022, 47R-2226 & 47R-2334
Note: Includes a portion of your study area. A good boundary has been established with existing reference plans.

55065-0320 (R) – No Title Document.
See report. Property did not meet qualifier for land titles pin. Crown Patent from 1816 to A. Ferguson located in Lot A, Concession 1, NWCP abstract does not have document number. Boundary well described as PART 3, Plan 47R-2335. Legal consultation will be required to establish ownership.

55065-0094 – The Corporation Town of Picton
Sketch attached to PE 31068, subject to and together with right of way. See reference plan 47R-2335.
Note: Part of this land is within your study area. Owned fee simple by the Town of Picton, subject to the rights of owners of adjoining parcels, if any. A good boundary has been established by Part 9, Plan 47R-2335.

55065-0089 – The Municipal Corporation of the Town of Picton
Parts 11 & 13, Plan 47R-2335. Sketches attached to PE71010 and Ron Benn Survey. There is no current easement document on title, but all surveys show an approximate position of sewer easement and manhole.
Note: Parcel of land located at the south west corner of your study area. Boundary well established by PARTS 11 & 13, 47R-2335.

55065-0331 – Albert Edward Rodway
Part 14, Plan 47R-2335
Note: Last registered deed is August 28, 1924 – occupied? No frontage. Triangular parcel of land within your study area. Boundary established by PART 14, 47R-2335. I would assume title may need to be cleared with your legal department.
ABUTTING LANDS:

55065-0226 (R) — Ownership not clear  
See 47R-294, 47R-644, 47R-816, 47R-851, 47R-2335, (47R-5305) – Subject to PC11585-right of way.  
Note: Thin strip of land lying east of your study area. Title did not meet the qualifications for land titles.  
From the documents on title it appears not to be owned by the Town of Picton and may be within your study area, and contain the roadway into Delhi Park.

55065-0114 (R) — Ownership not clear. Did not meet the qualifier for Land Titles.  
See 47R-6620  
Note: Last deed registered in 1998 to a numbered company. I believe this is an automotive tire shop.  
Manholes and pipe shown on Plan 47R-6620 by easement instrument 15933 not abstracted.

55065-0115 — Arnold John Zylstra  
Parts 1 – 3, 47R-7092.  
Note: I believe this is “SWMR” automotive repair shop. Subject to instruments PE153911-right of way, PE137658-right of way, and PE108478-sewers and water lines, all in favour of the Town of Picton. A good boundary has been established with reference plan 47R-7092.

55065-0117 — Siegfried & Lyn Jansen  
Parts 2-3, 47R-2683 except Parts 1-3, 47R-7092.  
Note: Residence between Muffler shop and Tire shop.

55065-0146 (R) — Ownership not clear  
See 47R-294 and 47R-644. Title did not meet the qualifications for land titles. Appears to be owned by Town of Picton.  
Note: Former sewer treatment facility, now a fenced pumping station enclosure. East of your study area. Plan 47R-644 shows a 15’ easement across your study area, but no easement registered on title.

55065-0321 — The Roman Catholic Episcopal Corporation of the Diocese of Kingston  
See pin map. See 47R-5305 and 47R-3781. Subject to interest in PE75266.  
Note: A large parcel of land at the east limit of your study area. Ownership was deeded in 1884. Entrance to cemetery I believe is through Town of Picton lands and Delhi Park entrance.

55065-0212 — The Corporation of the Town of Picton  
Block 55, Plan 113  
Note: A small parcel of land running adjacent to your study area between the Catholic Cemetery and the Glenwood Cemetery owned fee simple by the Town of Picton.

55065-0041 — Glenwood Cemetery  
See pin map. Subject to Hydro easement HW17882, Town of Picton easements PE59950 & PE36994 for right of way, PUC easement, pole line and water lines.  
Note: Large parcel of land located south of your study area. First deed registered in 1873.
APPENDIX E

Archeological report
# Stage 1 Archaeological Assessment of Delhi Park, Picton, Ontario

<table>
<thead>
<tr>
<th>Licensee:</th>
<th>Nick Gromoff, M.Sc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licence #:</td>
<td>P206</td>
</tr>
<tr>
<td>Company:</td>
<td>Ground Truth Archaeology</td>
</tr>
<tr>
<td>Prepared by:</td>
<td>Helen Sheldon, M.A.</td>
</tr>
<tr>
<td>PIF#:</td>
<td>P206-0116-2014</td>
</tr>
<tr>
<td>Development Name:</td>
<td>Delhi Park Stormwater Outfall Improvements</td>
</tr>
<tr>
<td>Development Project Designation #:</td>
<td>N/A</td>
</tr>
<tr>
<td>Property Location:</td>
<td>Part Lots 21 and 22, Concession South East of the Carrying Place and Part Lot 24 Third Concession Military Tract, Township of Hallowell, Prince Edward County, Ontario</td>
</tr>
<tr>
<td>Date:</td>
<td>15, February, 2015</td>
</tr>
<tr>
<td>Report type:</td>
<td>Revised</td>
</tr>
</tbody>
</table>

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GROUND TRUTH ARCHAEOLOGY  
P.O. Box 22013, RPO Trenton Centre  
Trenton, Ontario  
K8V 6S3  
groundtruth@sympatico.ca  
613-847-6529
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Executive Summary

In October of 2014 Ground Truth Archaeology conducted a Stage 1 archaeological assessment of Delhi Park in the Town of Picton for Quinte Conservation in support of improvements to the stormwater outfalls currently located within the park (Figure 4).

The study area encompasses Part Lots 21 and 22, Concession South East of the Carrying Place and a small section of Lot 24 Third Concession Military Tract in the Township of Hallowell, Prince Edward County. It consists of a large area of parkland located at the southeast edge of the Town of Picton (Figure 3). The land was patented early in the nineteenth century, Lot 24 in 1802 and Lots 21 and 22 in 1803. The park came into existence when the land was bought for that purpose by the Town of Picton in 1885. At that time Marsh Creek ran centrally through the park and was surrounded by large areas of marshland, which are clearly marked on the 1878 Belden map (Figure 8) and also on the 1947 soil map (Figure 9). The marsh was slowly filled in during the twentieth century with the last landfill activity occurring in 1979 (Water and Earth Science Associates Ltd. 1989).

The large portion of the property that was once covered by marsh is considered to have moderate to high archaeological potential as the perimeters of wetlands and any elevated area within them are areas of archaeological interest. As the locations of the perimeter and elevated areas are not known in relation to the present landscape due to landfill activities, the entire former marsh, and now landfill area, should be considered to have moderate to high potential for the presence of archaeological resources. The non-landfilled areas on the west side of the property, also meet the criteria for moderate to high archaeological potential, being in an area of early settlement, within 200 metres of a watercourse (Marsh Creek), on elevated land near a watercourse, and having previously identified archaeological resources in the immediate vicinity (MTC 2011).

Two cemeteries are known to have bordered on the study area. One is the active Glenwood Cemetery on the south and southeast; the other appears on the Belden map (Figure 8) at the south end of Chapel Street in an area that is now predominantly a parking lot. Land bordering on cemeteries is deemed to have high potential for the presence of archaeological remains.

As a result of the Stage 1 archaeological assessment and in concordance with the 2011 Standards and Guidelines for Consultant Archaeologists, Ground Truth Archaeology makes the following recommendations in regards the study area:

- Portions of the study area identified as having moderate to high archaeological potential (as shown on Figure 12, zone 1) require a Stage 2 archaeological assessment prior to ground disturbance consisting of a test pit survey at 5 metre intervals.

- Portions of the study area identified as having moderate to high archaeological potential within the landfill area (as shown on Figure 12, zone 2) require a Stage 2
archaeological assessment prior to ground disturbance consisting of mechanical excavation in order to reach and assess the original pre-landfill ground surface.

- For areas of ground disturbance located within 10 metres of the limits of the cemeteries (as shown on Figure 12, zone 3), a Stage 3 archaeological assessment should occur consisting of mechanical stripping of topsoil in order to identify grave shafts.

**Project Personnel**

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<tr>
<td>Licensee</td>
<td>Nick Gromoff (P206)</td>
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<td>Project Manager</td>
<td>Nick Gromoff</td>
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<tr>
<td>Historical Research</td>
<td>Helen Sheldon (P191)</td>
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<tr>
<td>Cartography</td>
<td>Helen Sheldon</td>
</tr>
<tr>
<td>Report Writing</td>
<td>Helen Sheldon</td>
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**Development Context**

In October of 2014 Ground Truth Archaeology was contacted by Tim Trustham of Quinte Conservation to conduct a Stage 1 archaeological assessment of Delhi Park in the Town of Picton in support of improvements to the stormwater outfalls located within the park.

The study area is located on Part Lots 21 and 22, Concession South East of the Carrying Place and Part Lot 24 Third Concession Military Tract in the Township of Hallowell, Prince Edward County. It consists of a large area of parkland located at the southeast edge of the Town of Picton (Figures 1-6).

The Stage 1 archaeological assessment was conducted as part of a municipal environmental assessment for upgrading the storm water management system currently in place within Delhi Park. The legislation triggering the assessment is the Environmental Assessment Act. Quinte Conservation is the approval authority for this application. Permission to conduct the Stage 1 assessment was given by Tim Trustham of Quinte Conservation.
Historical Context

Lot 21 South East of the Carrying Place was patented in 1803 to William McAulay (OLR). The 200 acres of the lot were still in the McAulay family in 1850 when the Honourable John McAulay sold the 200 acres to the Reverend William McAulay. By 1885 the property was in the hands of the trustees of S.C. McGill et al who sold part of the lot to the Corporation of the Town of Picton for a park (OLR).

Lot 22 South East of the Carrying Place was also patented in 1803 to William McAulay. In 1850 the Lot was included in the sale by the Honourable John McAulay to the Reverend William McAulay. And also in 1885 it was the trustees of S.C. McGill et al who sold part of the lot to the Corporation of the Town of Picton for a park (OLR) – totalling 35 acres from Lots 21 and 22.

William McAulay is shown as the owner of both Lots 21 and 22 on the 1863 Tremaine (Figure 7) map and the McAulay name is still attached to the properties on the 1878 Belden map (Figure 8).

The study area also includes the northeastern extreme of Lot 24 of the Third Concession Military Tract. The lot was patented in 1802 to Henry Young (OLR). In 1811 Henry Young sold the 25 acres of the north end to Ana Ferguson who sold it in 1853 to Royal Hicks. Two years later in 1855 it was sold to Mary Coleman (OLR) who is shown as the owner on the 1863 Tremaine map (Figure 7). In 1870 Mary Coleman sold the land to W.T. Yarwood and C.S. Wilson and wives, who sold 23.2 acres of the 25 acres to the Glenwood Cemetery Company in 1872 (OLR). The Cemetery is shown as the owner of the lot on the 1878 Belden map (Figure 8).

Two cemeteries are shown abutting the study area on the 1878 map (Figure 8) – the Glenwood cemetery on the southwest and another smaller cemetery, labelled “graveyard” at the south end of Chapel Street, immediately north of the study area. It is a bit difficult to tell from the Tremaine map (Figure 7) as a large letter L from the label “Hallowell” lies across much of the study area, but there does not appear to be a cemetery in the vicinity of Chapel Street at this time. The Chapel Street cemetery therefore sprang into existence sometime between 1863 and 1878. Cemeteries are of some concern for ground disturbance on adjoining properties as not all burials were performed within the actual cemetery grounds – some have been known to be located somewhat outside of the official limits of the burial grounds.

The parkland acquired by the Town of Picton in 1885 became known as Delhi Park, after the nickname by which the south side of Picton was known. Picton developed in the early nineteenth century as two distinct villages separated by a marsh surrounding Marsh Creek. The northern, more affluent side was known as Hallowell, the southern as Picton. Reverend McAulay, an influential resident and owner of the two lots comprising the majority of the study area, was from the Picton side of the marsh, which was also known as Delhi. When the two villages amalgamated in 1837 it was McAulay’s preference for the name of Picton for the new town that prevailed (Cruickshank and Stokes 1984).
Marsh Creek that flows through the study area is shown on the 1878 Belden map as surrounded by a relatively large expanse of marshland that has not survived to the present. The marsh was used as a landfill site for the town of Picton for much of the first half of the twentieth century for both domestic and industrial waste (Water and Earth Science Associates Ltd. 1989), with the result that Marsh Creek now flows through elevated lawns with no signs remaining of the original marsh habitat.

Today the land remains as parkland, an area of green space utilized by various members of the public with facilities ranging from a dog park to a children’s playground. It is bounded on the north by York Street, on the west by the backyards of residential dwellings fronting onto Mary Street and Burns Avenue, on the east by Lalour Street and on the south and southeast by the Glenwood Cemetery.

**Archaeological Context**

The subject property is located on the east side of Prince Edward County on the southeast edge of Picton.

Prince Edward County is essentially an outlying plateau of Trenton limestone that protrudes into Lake Ontario and is connected to the north shore by a lowland underlain by the same formation (Chapman and Putnam 1973). The plateau slopes gently to the southwest towards Point Petre, which is the southwest corner of the county. The soils on the plateau are mainly shallow with much of the land covered in less than a metre of topsoil. A good portion of the region has only a few centimetres of rocky earth for topsoil, but pockets of deep and fertile soil are to be found in some low lying areas. A number of shallow valleys, most running east-west, have been cut into the limestone. The northernmost is the largest, which contains the Big Swamp, Lake Conesecon and Conesecon Creek. The entire western coast of the peninsula is indented with bays, which are blocked by transverse sand bars forming lagoons. This phenomenon is due to the prevailing winds. The largest of these embayments are Weller’s Bay, West Lake where the famous Sandbanks are located, and East Lake.

Along the northern shore of the peninsula forming the south shore of the Bay of Quinte is a lowland area that backs up to the edge of the escarpment marking the beginning of the Prince Edward Plateau. This escarpment runs essentially east-west from Carrying Place through Ameliasburgh and Sophiasburgh Townships then turns south when it reaches the Bay of Quinte forming the eastern shore of the peninsula. Three small lakes are found close to the edge of the escarpment: Roblin Lake at Ameliasburgh, Fish Lake at Demorestville and Lake on the Mountain above Picton. All three lakes and their outflows were utilized for waterpower early in the settlement of the county. Muscote Bay is located in the northeast portion of the peninsula with its entrance between Massassauga Point and the western end of Big Island, a low island of lacustrine clay and sand separated from the rest of Sophiasburgh Township by a wide marsh.

The current study area is located on the southeast side of the Town of Picton and consists of a mixed use park including areas of open lawn, woods, an off leash dog park, duck
pond and children’s playground. A small creek known as Marsh Creek flows the length of the park and then into the head of Picton Harbour. The valley associated with the creek is remarkable for the steep incline on the northwest side, with a change on elevation of 10 metres between the creek on the floor of the valley and nearby Mary Street on the northwest.

Consultation with the Ministry of Culture’s Archaeological Sites Database shows that there are no registered sites within the subject property, but one registered site does exist within 1 km of the study area. The site consists of a single Laurentian Archaic grooved axe found in the backyard of a house on the northwest side of the study area, recorded by Ken Swayze (1976) and registered as BaGg-3. The site record form for the site indicates that several other artifacts had also been found in the area, but not formally registered as archaeological sites (MTCS 2014). A local resident informed Swayze (1976:40) that the Mary Street area was a well-known “Indian trail where several artifacts have been found”.

Late Laurentian Archaic burials are known to have existed in the Picton area, most of which were investigated before archaeological sites were officially registered in Ontario. Wright (1972: 12) illustrates a collection of elaborate grave goods, many made of exotic materials, from near Picton.

The majority of the property is covered with Percy fine sandy loam (Pfs), a stonefree, slightly acidic to neutral soil with good drainage (Figure 9). Bedrock usually occurs within one metre of the surface. Granby sandy loam (Gs) is found at the southern end of the property, a poorly drained stone free soil high in organic matter. Along the eastern boundary of the study area is a strip of Ameliasburg loam (AI), a stony well drained soil that is moderately shallow over bedrock (Experimental Farms Service 1947).

The property was visited on October 28, 2014 by Helen Sheldon for a property inspection.
Field Methods

An optional property inspection was conducted on Tuesday October 28, 2014 in suitable conditions for the observation of archaeological resources, i.e., overcast with a high temperature of 20º C and no precipitation.

The entire perimeter of the study area was traversed on foot and photographed.

Documentation associated with the Stage 1 assessment is stored in the offices of Ground Truth Archaeology in Quinte West, Ontario.

Record of Finds

Inventory of field notes: Author/recorder – Helen Sheldon
Field notes: October 28, 2014 - 2060116NB1
Photographs: 2060116D01-34

The property was found to consist of maintained parkland surrounding a small creek with a substantial escarpment running along the northwest side. The Glenwood cemetery lies on the south and southeast sides of the study area, located upon rolling and elevated grounds. A duck pond has been created at the south end of the property, and a small pond surrounded by cattails also exists near York Street. Evidence of landfill activities was found on that portion of the land that rises immediately to the northwest of the creek, with pieces of concrete occasionally visible at the surface.

A derelict concrete water fountain lies in the southwest corner of the park, overlooking the Glenwood Cemetery and bearing the inscription “This system of waterworks erected 1910 by Wellington Boulter in memory of the city of the dead.” Wellington Boulter was a successful businessman who operated the first canning factory in Picton in the late nineteenth century and is now buried in the Glenwood Cemetery (Country Memory).
Images

Plate 1: View over central portion of study area (2060116D01)

Plate 2: Duck pond at south end of study area (2060116D03)
Plate 3: Derelict water fountain erected by Wellington Boulter (2060116D04)

Plate 4: Glenwood Cemetery at south end of study area (2060116D07)
Plate 7: Playground on east edge of study area (2060116D19)

Plate 8: Bridge over creek at York Street (2060116D20)
Plate 9: Marsh creek south of York Street (2060116D23)

Plate 10: York Street at northeast edge of study area (2060116D25)
Plate 11: Existing storm water outfall in northern pond (2060116D27)

Plate 12: Overview of west side of study area (2060116D31)
Analysis and Conclusions

The study area consists of an area of parkland known as Delhi Park located on the southeast side of the Town of Picton. Specifically, the study area encompasses part of Lots 21 and 22, Concession South East of the Carrying Place and a small section of Lot 24 in the Third Concession Military Tract in the Township of Hallowell, Prince Edward County.

Several indicators of archaeological potential are present on the property. Archival evidence indicates that all of the lots were patented in the early nineteenth century (1802 and 1803). An early date of settlement is one of the factors that determine archaeological potential (MTC 2011). Other factors are proximity to a watercourse (Marsh Creek) and elevated ground bordering on wetlands associated with a creek, both of which are present in Delhi Park. The find of a Laurentian Archaic artifact on the northwest side of the Park also adds to the archaeological potential of the property.

The perimeter of the marshland that once surrounded Marsh Creek and any elevated areas within the marsh would be considered as having moderate to high archaeological potential. As the original perimeter of the marsh and possible elevated areas are not known in relation to the present landscape, the landfill area of the property is also considered to have moderate to high potential for the presence of archaeological resources. The elevated grounds lying beyond the landfill on the west also are considered to have moderate to high archaeological potential.

The presence of cemeteries adjoining the study area, the active Glenwood Cemetery on the south and southeast and the late nineteenth Chapel Street cemetery that appears on the Belden map and now is primarily a parking lot, creates moderate potential for the discovery of human remains in areas located within 5 metres of the cemetery limits.

Recommendations

As a result of the Stage 1 archaeological assessment and in concordance with the 2011 Standards and Guidelines for Consultant Archaeologists, Ground Truth Archaeology makes the following recommendations in regards to the study area:

- Portions of the study area identified as having moderate to high archaeological potential (as shown on Figure 12, zone 1) require a Stage 2 archaeological assessment prior to ground disturbance consisting of a test pit survey at 5 metre intervals.

- Portions of the study area identified as having moderate to high archaeological potential within the landfill area (as shown on Figure 12, zone 2) require a Stage 2 archaeological assessment prior to ground disturbance consisting of mechanical excavation in order to reach and assess the original pre-landfill ground surface.

- For areas of ground disturbance located within 5 metres of the limits of the cemeteries (as shown on Figure 12, zone 3), a Stage 3 archaeological assessment
should occur consisting of mechanical stripping of topsoil in order to identify grave shafts.

- Should deeply buried archaeological remains be found on the property during development activities, the Ministry of Tourism, Culture and Sport (416-314-7148) should be notified immediately.

- In the event that human remains are encountered during development, the proponent should immediately contact local law enforcement, then Michael D’Mello, Cemeteries Regulation Unit, Ministry of Small Business and Consumer Services, 416-326-8404, and the Ministry of Tourism, Culture and Sport.

Advice on Compliance with Legislation

This report is submitted to the Minister of Tourism and Culture 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 Tourism and Culture, 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 a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act.

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 licence.

**References**

**Maps**

National Topographic Series (31C3) – 1:50,000 map

OBM (1018 3250 48750 & 1018 3250 48700) – 1:10,000 map

Google Earth base image dated July 11, 2011, accessed November 6, 2014

Prince Edward County Public GIS accessed November 6, 2014

**Archival Map References**

Tremaine’s Map of Prince Edward County, Upper Canada, 1863. Original copy on display, Wellington Archives, Prince Edward County.


Experimental Farms Service

**Primary Historic Documents**

Ontario Land Registry (OLR) Records Hallowell Township, original copies available at the Wellington Archives, Prince Edward County

**Other**

Chapman, L. J. and D. F. Putnam

Country Memory

Cruickshank, Tom and Peter John Stokes

28

Ministry of Tourism and Culture (MTC)

Ministry of Tourism, Culture and Sport (MTCS)
2014 Sites within a One Kilometre Radius of the Project Area Provided from the Ontario Archaeological Sites Database, November 10, 2014.

Swayze, Ken
1976 Archaeological Inventory of Prince Edward County. OMCA, Ottawa.

Water and Earth Science Associates Ltd.

Wright J.V.
## Appendix A: Photograph Catalogue

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APPENDIX F

Hydrology report
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Table 7: Combined Catchment P1 and P2 treatment technology sizing, depth minimized ........ 7
1.0 Introduction
Many stormwater management technologies have been used to improve stormwater quality across Ontario. Most technologies use physical processes to settle or separate sediment particles from the stormwater effluent. Some technologies also include biological or chemical removal of pollutants.

The 2003 Ministry of the Environment Stormwater Management Planning and Design Manual (MOE SWMPDM) provides design guidance for common end-of-pipe stormwater treatment technologies and was used to develop preliminary sizing for different treatment technologies. The preliminary sizing provides information which can be used to determine construction costs, level of water quality treatment and other factors which will be used to evaluate the options in the decision matrix.

2.0 Study Area
The study area is generally open parkland which has trails, a baseball diamond, dog park and two ponds. Stormwater is conveyed from the urban Town of Picton to the north to Delhi Park by two storm sewer networks. The storm sewersheds and outlets have been identified on Figure 1.

Drainage conveyed from catchment area P1 outlets at the south-west corner of the parkland. The impervious cover was determined by digitizing the paved surfaces and structures in ArcGIS. The total area of catchment P1 is 68 hectares and is 36% impervious cover.

Drainage conveyed from catchment area P2 outlets towards the north-west corner of the parkland. The total area of catchment P2 is 56 hectares. The impervious cover for catchment P2 is 47%.
3.0 Methodology

Three end-of-pipe treatment technologies were investigated: wet ponds, constructed wetlands, and dry ponds. The technologies were sized using Table 3.2 in the MOE 2003 SWMPDM to determine the permanent pool and the extended detention storage volume for enhanced, normal and basic water quality treatment. Further SWMPDM design guidance was used to specify the minimum and recommended geometry, such as, length-to-width ratio, side slopes and depth.

4.0 Preliminary Sizing

The required permanent pool and extended detention storage volume was calculated using Table 3.2 of the 2003 MOE SWMPDM. The catchment areas and percent impervious cover was used in the calculations. A summary of the required storage volumes is provided in Table 1.

Table 1: Catchment P1 required treatment volumes

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<td>3,040</td>
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</table>
A range of geometries could be used to achieve the desired level of water quality treatment. The geometry of the treatment technologies can be optimized to minimize the depth of disturbance to the underlying soil and landfill material or optimized to minimize the pond area to reduce the material costs of a clay liner if needed. These geometries are provided in Tables 2 to 7 for catchment areas P1, P2 and the combined catchment respectively.

The design guidelines for wetlands recommended a length to width ratio of 3:1, an average permanent pool depth between 150 millimetres to 300 millimetres, a maximum active storage depth of 1 metre and 5:1 side slopes. The design guidelines for wet ponds recommend a minimum length to width ratio of 3:1, a maximum permanent pool depth of 3 metres with a mean depth of 1 to 2 metres, a maximum active storage volume of 1.5 metres and a minimum 5:1 side slopes. The design guidelines for dry ponds recommended a length to width ratio between 4:1 and 5:1, a maximum depth of 3 metres and a mean depth of 1 to 2 metres, and side slopes of 4:1.

**Table 2: Catchment P1 treatment technology sizing, surface area minimized**

<table>
<thead>
<tr>
<th>Technology</th>
<th>Treatment Level</th>
<th>Top length (m)</th>
<th>Top width (m)</th>
<th>Total Depth (m)</th>
<th>ED depth (m)</th>
<th>PP depth (m)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>57.0</td>
<td>0.59</td>
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<td>0.68</td>
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<td>40.5</td>
<td>0.92</td>
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**Table 3: Catchment P1 treatment technology sizing, depth minimized**

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<th>Top width (m)</th>
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<th>ED depth (m)</th>
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<td>Top width (m)</td>
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<td>ED depth (m)</td>
<td>PP depth (m)</td>
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<td>0.54</td>
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<th>Top width (m)</th>
<th>Total Depth (m)</th>
<th>ED depth (m)</th>
<th>PP depth (m)</th>
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<tr>
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<th>Top width (m)</th>
<th>Total Depth (m)</th>
<th>ED depth (m)</th>
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<td>54.0</td>
<td>0.92</td>
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</table>
Table 7: Combined Catchment P1 and P2 treatment technology sizing, depth minimized

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<th>Top width (m)</th>
<th>Total Depth (m)</th>
<th>ED depth (m)</th>
<th>PP depth (m)</th>
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</tbody>
</table>

*Length-to-width ratio of 3:1 was used to minimize footprint, however calculations have been completed for length-to-width ratios of 4:1 and 5:1.

**Minimum side slopes of 5:1 for wet ponds and wetlands and 4:1 for dry ponds were used to minimize impacts to public safety.

5.0 Conclusions

The preliminary sizing can be used to evaluate the treatment technologies in the decision matrix. The sizing provides information on land cover, volume of material to be excavated and pond surface area if an impermeable liner needs to be installed.

The data provided in this report demonstrates the deepest/smallest sizing and the shallowest/largest sizing. There are many other geometries between these extremes that can achieve the same level of treatment.
APPENDIX G

Mapping of the project area
APPENDIX G.2

Engineering survey of study area