



**DEVELOPMENT & INFRASTRUCTURE SERVICES – PUBLIC WORKS SERVICES**  
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**DEVELOPMENT & INFRASTRUCTURE SERVICES - PUBLIC WORKS SERVICES  
INFORMATION REPORT 2017-11**

**TO:**                      Committee of the Whole  
**SUBJECT:**            Closed Waste Disposal Site x7016 – George Richardson Park  
**ORIGIN:**              Development and Infrastructure Services – Public Works Services

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In accordance with the Procedure By-law, any Member of Council may make a request through the Town Clerk that this Information Report be placed on an upcoming Committee of the Whole Agenda for discussion.

**PURPOSE**

The purpose of this Report is to update Council with respect to PWS Report 2011-70, dated July 29, 2011 in which the municipality received a letter from the Ministry of Environment (MOE) advising of possible leachate seepage from a former landfill site located in a park area.

**COMMENTS**

In 2001, through MOE's routine checks of old landfill sites, it was brought to the Town's attention that possible leachate seepages were discovered at two locations along a storm water drainage channel next to the Bayview Parking/Holland River area at George Richardson Park. At that time, the MOE required an investigative process, and staff retained the services of a recognized expert consultant in closed landfill investigations and analysis. This consultant did confirm that there was apparent leachate seepage present in two locations. The consultant also advised that there was not a health risk to the users of George Richardson Park nor the nearby residents. A field investigation conducted by senior Public Works Services staff confirmed that the two locations are away from public areas, and are not readily apparent to the public.

The next phase of their work, or Stage One Investigation, was to conduct a historical review of the area. This defined how the affected area of the park was created and assisted in determining the next steps. The consultant did extensive research into the history of the area obtaining old records from various sources and aerial photographs taken in 1927, 1946, 1959/60, 1962 and 1971 from the National Air Photo Library and the Natural Resources Information System for 1999, 2002, 2005 and 2009. These photos indicated the area was used for a landfill site throughout 1950's, 1960's and early into the 1970's. The conclusion from the Stage One investigation indicates that a waste disposal operation did exist between 1946 and 1999, the primarily use was urban municipal/domestic waste.



The next step was to proceed into Stage 2 of the Work Plan which included further site delineation and holding a PIC on June 20, 2012, which was attended by residents in the area, staff from the Lake Simcoe Region Conservation Authority, MOE, York Region Health Services, Mayor, Regional and Ward Councillors and Town staff including Legal, Communications and Public Works Services.

### **Stage 1 Investigation Summary**

The investigation by CRA included a search for historical land use of the Site through a review of available historical information, environmental databases, and aerial photographs of the Site and surrounding area.

In general, CRA:

- Verified through available historical Archives of Ontario files (1957 to 1962) the existence of a waste disposal site within the Site
- Completed an environmental database review whereby two separate data base searches indicated operation of a primarily urban municipal/domestic waste disposal site in the 1950s and 1960s, with active waste disposal operations from 1935 at the earliest, to closure sometime in the 1960s
- Reviewed aerial photography to discover that an area of disturbance in the vicinity of the presumed waste disposal location was visible in the 1959/1960 aerial photograph that again was visible in the 1962 and 1971 aerial photographs, however, not visible in the 1999 aerial photograph
- Completed a search of the MOE Water Well Information System (WWIS) database that identified a total of six water well records on Site and seven records within a 250-metre (m) radius of the Site
- Determined that the stratigraphy on Site consists mainly of clay from 0.6 to 32 metres below ground surface (m bgs) and clay, medium sand, and gravel to boulders from 32 to 68 m bgs
- Concluded that a primarily urban municipal/domestic waste disposal site operated within the Site between 1946 and 1999, ceasing operations between 1971 and 1999, with general operations throughout the 1950s, 1960s, and 1970s, with an approximate location of the potential waste disposal site being defined as east of the Holland River, south of York Region's Water/Wastewater Operations Centre, and west of Bayview Parkway (an exact location could not be determined)

On February 17, 2012, CRA met with the Town, the MOE, the Lake Simcoe Region Conservation Authority (LSRCA), and the York Region Health Protection Division, to present the results of the Stage 1 Assessment. Two resulting action items of the meeting included completion of supplemental investigation of surface water and shallow soils in the vicinity of the Site to alleviate potential issues/risks associated with public use of the recreational fields located within the site.

CRA completed a surface water and shallow soil investigation on March 2, 2012, to identify potential surface water and surface soil quality concerns at the Site. Six surface water samples were collected on March 2, 2012, from five on-Site locations.

While several parameters (i.e., phosphorus, aluminum, fluoranthene, and hexavalent chromium) were reported to be above their respective Provincial Water Quality Objectives (PWQOs) in surface water

samples collected from the Holland River, results were above the PWQOs both upstream and downstream of the Site as well. As such, the presence of these parameters at elevated concentrations within the Holland River is interpreted to be unrelated to the Site. Phosphorus and fluoranthene were also reported above their respective PWQOs in the samples collected from the on Site stormwater ditches both upstream and downstream of the suspected waste disposal site. As the concentrations were very similar both upstream and downstream of the suspected waste disposal site, it is likely that a source other than the landfill is contributing to the observed concentrations.

Nine shallow soil samples were collected on March 2, 2012, from eight on-Site locations. The shallow soil samples were generally collected with a hand shovel from a depth interval between 0 and 8 inches below ground surface, with five of eight sample locations revealing small fragments of debris intermixed with the soil within a 0- to 6-inch layer below ground surface.

Analytical results were compared to criteria published by the Ministry of the Environment in the document entitled "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", published on April 15, 2011. Results were compared to the criteria for Residential/Parkland/Institutional property use within 30 m of a water body in a potable groundwater situation (MOE Table 8 Criteria).

Samples collected from five of the eight locations were below the selected generic criteria for all parameters analyzed. The five soil samples meeting all of the generic soil quality criteria were: S-01 (southern soccer field), S-02 (western baseball diamond), S-03 (eastern baseball diamond), S-06 (northern soccer field), and S-07 (east of northern soccer field). Analytical results for all samples collected directly from sports fields were below the generic criteria.

## **Stage 2 Delineation**

The Stage 2 Assessment included soil boring advancement and monitoring well installation, soil and groundwater sampling and analysis, and data assessment and reporting, focusing on areas identified in the surficial soil and surface water investigation and other areas identified as additional points of interest. The Site encompasses an historical landfill that predates the MOE and no Certificate of Approval (C of A) was ever issued for the Site. Historical information regarding waste placement at the Site is limited as is the exact location of the waste disposal site. Figure 1 provides an outline of the Site as well as the locations of the boreholes and monitoring wells completed as part of the Stage 2 Assessment, as agreed to by the Town and the MOE.

In general, a layer of topsoil was present at surface, underlain by granular fill consisting primarily of fine grained sand. The fill was underlain by native soils ranging from silty sand to medium to coarse grained sand with gravel. A firm silt and clay till was at the maximum achieved depth. Refuse materials were found sporadically within much of the fill materials; however, many of the investigated locations contained very little refuse. Three locations (BH5-12, MW3-12, and BH12-12) contained significant layers of refuse, indicative of historical waste placement. The three locations where historical refuse placement was apparent are located on the west side of Bayview Parkway and in the southern portion of the park area, as shown on Figure 1. In all three boreholes, the refuse was a lightweight, fibrous material that was heavily oxidized and overlying a layer of silt and clay. This silt or silt and clay layer was found in seven of the borehole locations at depths of approximately 2.13 m to 2.49 m and was between 0.25 m and 1.22 m thick.

Saturated soil conditions were encountered at every location. Overall groundwater flow at the Site is interpreted to be northwest across the Site toward the Holland River.

Soil quality was investigated through the advancement of 12 boreholes. Soil samples were collected from each borehole and described for geologic detail, evidence of chemical impacts and evidence of waste placement. The following sections discuss the results of the soil sampling program.

Evidence of layers of buried refuse (indicative of historical landfilling) was observed within MW3-12, BH5-12 and BH12-12. As indicated on Figure 1 these boreholes are the three southern-most locations to the west of Bayview Parkway. Although there was minor evidence of occasional debris within fill materials at most of the other locations investigated, there was no evidence of actual layers of waste material that would be indicative of historical landfilling.

Based on these observations, it is interpreted that the historical waste disposal site is located within the triangular portion of the property located in the southwestern corner of George Richardson Park, bounded by the Holland River to the west, Bayview Parkway to the east, and a public trailway to the north.

The results of the Stage 2 Assessment indicate that there is minor evidence of occasional debris within fill materials at most locations investigated at the Site; however, the soil quality in areas where there was no clear evidence of historical landfilling were acceptable in terms of the chemical composition.

Based on the presence of layers of buried waste and the results of the soil quality sampling program, it is interpreted that the area of waste disposal at the Site is located in the vicinity of BH5-12, MW3-12, and BH12-12.

The analytical results of the groundwater sampled from each of the three newly installed monitoring wells showed low concentrations of metals, VOCs, and PAHs. Groundwater sampled from MW3-12 did not contain any significantly elevated parameters when compared to the results from MW1-12 and MW2-12, suggesting that there is little influence on the groundwater quality from the impacts observed within the soil/refuse.

CRA has completed four investigations at the Site (i.e., surface water, groundwater, and soils), a search of documentation available through the provincial archives, environmental databases, regulatory agency archives, and a review of aerial photographs, to confirm the existence of a former waste disposal site within George Richardson Park and to determine the potential impacts on its surroundings. The results of these investigations can be summarized as follows:

- The site limited to a triangular portion of land located in the southwestern corner of George Richardson Park, bounded by the Holland River to the west, Bayview Parkway to the east, and a public trailway to the north, once operated as a waste disposal site. This area is the location of the current leash free dog park.
- The "rust red staining" identified and concluded to possibly "be indicative of a leachate seep" by the MOE during a Site inspection on February 10, 2011, is not a direct result of the waste disposal area identified within George Richardson Park

The shallow soil investigation and the Stage 2 Assessment borehole program indicated minor amounts of debris throughout the shallow soils across the Site. However, borehole data has clearly identified a refuse layer in the southwestern corner of the Site.

While the source of the "rust red staining" identified by the MOE has not been identified by this Phase II Assessment, groundwater monitoring sample results indicate that the seep is likely of no immediate concern to the public or the environment.

## **CONCLUSION**

The Site was closed with more than 0.6 m of fill material of various composition and compaction as evidenced by the borehole logs, along with a minimum 0.15 m of topsoil/vegetative cover material. The cover material used to close the Site has allowed sufficient quantities of precipitation to infiltrate the waste over the past 30 years or more, thereby reducing the contaminating lifespan of the waste disposal site. The waste disposal site was also closed with adequate slopes to ensure sufficient stormwater runoff during significant storm events.

Considering the fact that the Site is approaching or beyond its contaminating life span and sufficient cover materials and slopes exist at the Site, the potential for negative impacts to the public and surrounding environment is minimal.

Given the evidence that sufficient cover materials and slopes exist at the Site to permit continued infiltration of precipitation in aid of reducing the contaminating lifespan of the Site while encouraging stormwater runoff during significant storm events, and considering the fact that this Stage 2 Assessment has identified limited impacts in the surrounding soil and groundwater, CRA proposes the following recommendation for the Site:

- Due to the presence of potential physical hazards associated with inert debris within the shallow soils it may be prudent for the Town to investigate the quality of fill materials or alternatives for enhancing the sports fields to ensure they continue to be appropriate for recreational use.

Note: The area presently used for the Dog Park has had additional material and permeable membrane placed on it.

The full report can be viewed at: T:\Public\ES\DOCUMENT MANAGEMENT\074891-RPT3-Environmental Site Investigation Stage 2 Summary Report.pdf

## **BUSINESS PLAN AND STRATEGIC PLAN LINKAGES**

Focusing on health, safety and the environment to promote environmental protection and natural heritage preservation.

## **HUMAN RESOURCE CONSIDERATIONS**

Not applicable to this report.

## **IMPACT ON BUDGET**

Operating Budget (Current and Future)

The total unbudgeted cost of the investigations including consultant and contractors has been \$ 99,746.19.

### Capital Budget

A Capital budget request would be required to provide additional material coverage on the playing fields, if deemed necessary following investigative fill quality studies. Coordination with LSRCA to perform this work will be necessary as the area in question is designated flood plain.

### CONTACT

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Source: MNR NRVIS, 2011. Produced by CRA under licence from Ontario Ministry of Natural Resources, © Queen's Printer 2012;  
 Coordinate System: NAD 1983 UTM Zone 17N

figure 1

**Legend**

-  Borehole Location
-  Monitoring Well Location
-  Site



INVESTIGATION LOCATIONS  
 STAGE 2 SUMMARY REPORT  
 CLOSED WASTE DISPOSAL SITE x7016  
 Town of Newmarket, Ontario