Niagara Region

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2025 Information Summary for the Humberstone Landfill Site

General Landfill Site Information

The Humberstone Landfill Site (Site) is located at 700 Humberstone Road in the southwest part of the City of Welland and has been in operation since the late 1940s. The responsibility for the landfill was transferred from the City of Welland to Niagara Region on January 1, 1997.

The Site accepts domestic, commercial, and non-hazardous, solid industrial waste for disposal under Ministry of the Environment, Conservation and Parks (Ministry) regulatory approval number A120401 (called an Environmental Compliance Approval or an ECA). The Ministry approval provides a comprehensive list of conditions from the Province that Niagara Region is to comply with when operating, maintaining, and monitoring the Site.

The Site is open to all residents and businesses in the Niagara region but primarily accepts curbside collected waste for disposal only from the four southern municipalities including Fort Erie, Port Colborne, Wainfleet and Welland.

Based on the site volume survey completed in September 2025, the remaining capacity of the landfill site is estimated to be 1.858 million cubic meters. At the current rate of landfilling, it is estimated that there are thirty-one (31) more years of site life.

The Site infrastructure includes: Weigh Scale with Scale House; Residential Waste and Recycling Drop Off Depot; Household Hazardous Waste Drop Off Depot; Reusable Goods Drop Off Depot; Maintenance Building; Staff Office Building; a Landfill Gas Collection System with Flare Building; a Leachate Collection System with three pumping stations; Stormwater Management System with perimeter ditches and four detention ponds; the landfilled area itself, and a separate closed containment cell with soil containing low level PCBs.

Operations

Residential Waste and Recycling Drop Off Depot

A Residential Waste and Recycling Drop Off Depot for small loads is located west of the scale house. The public may drop off residential waste and recyclable material in roll off bins for residential waste, scrap metal, drywall, construction and demolition waste and blue and grey box materials. There are also separate areas for tires, leaf and yard waste,

electronics, mattresses, and appliances that contain freon. All recyclable materials are hauled from the Site to be recycled.

In 2025 there were 124,178 vehicles that used the Residential Waste and Recycling Drop Off Depot. A selection of items recycled in 2025 is included in Table 1.

Table 1-Residential Drop Off Depot Recycled Materials in 2025

Material	Collected in 2025
Blue Box and Grey Box	119 tonnes
Drywall	161 tonnes
Scrap Metal	488 tonnes
Tires	137 tonnes
Electronics	111 tonnes
Mixed Plastic	141 tonnes
Cardboard	400 tonnes
Mattresses and Box Springs	108 tonnes

Bulky Material Stockpiles

There are stockpile areas for soil, asphalt, concrete, shingles, brush, and construction and demolition wood. The wood is ground into chips which are used as alternate daily cover over waste or for on-Site road stabilization during muddy conditions. Soil is used at the Site as cover. Asphalt and concrete are crushed and used as road base materials for on-Site roads. Shingles are transported off-Site for recycling.

Household Hazardous Waste Drop Off Depot

The Household Hazardous Waste (HHW) Drop Off Depot is located adjacent to the front entrance gate at the landfill. The HHW Depot is for the collection and temporary storage of domestic quantities of residential hazardous waste including fluorescent light tubes and ballasts, batteries, used motor oil, cooking oil, paint, etc. Commercial HHW materials are not accepted.

In 2025 there were 26,834 vehicles that used the HHW. A selection of items collected in 2025 is provided in Table 2

Table 2-Household Hazardous Waste Drop Off Depot Materials Collected in 2025

Material	Collected in 2025
Motor oil and lubricants	83,846 liters
Oil Filters	1.4 tonnes
Paint	89.6 tonnes
Lead acid vehicle batteries	12.3 tonnes
Household batteries	7.1 tonnes
Fire Extinguishers	3.1 tonnes
Pesticides and Herbicides	2.8 tonnes
Pharmaceuticals	137 kilograms

Reusable Material Drop Off Depot

Niagara Region is in partnership with Goodwill to operate a Reusable Material Drop Off Depot for items in good condition that can be reused. The Reusable Material Drop Off Depot is located near the HHW Depot.

Waste Working Face

The landfilled waste area is covered by soil, except for the small area where waste is being placed daily. This area is called the waste working face. Niagara Region keeps the waste working face area small to minimize odours and to make it easier to cover at the end of each day. As the waste is being placed, it is bulldozed and then compacted by a landfill compactor. Daily cover placed on top of the waste face at the end of each working day includes tarps or wood chips. Soil may also be used during inclement weather. The total waste received in 2025 was 43,728 tonnes.

Gull Control

A gull control program was started in 2006. The gull control contractor uses trained birds of prey to disperse gulls from the landfill.

Leachate Collection System

A leachate collection system was constructed around the perimeter of the landfilled area in the late 1990s. The leachate collection system consists of a 2.3-kilometer-long trench constructed within the surrounding clay. The trench is filled with gravel and has a perforated collector pipe near the bottom of the trench. The outward flow of leachate from the waste is intercepted prior to impacting groundwater. The leachate level in the gravel trench is continually lowered through active pumping by three pumping stations as new leachate is

generated and intercepted. In 2025, about 78,012 cubic meters of leachate was pumped from the Site into the sanitary sewer system and conveyed to the Welland Wastewater Treatment Plant for processing.

Stormwater Pond Operation

There is a perimeter ditch system that directs landfill surface water runoff into four stormwater detention ponds located around the Site. The ponds have discharge valves that are closed and runoff from the landfill cap is captured in the ponds. The pond water is sampled and released to the environment if the sample results show the water is not impacted by the landfill. If the pond water shows landfill impacts, then the pond water is redirected into the Leachate Collection System.

Landfill Gas Capture and Flaring for Greenhouse Gas Emission Reduction

As organic matter in the waste decomposes over time, it generates landfill gas. Landfill gas is composed of about 50 percent methane and 50 percent carbon dioxide with trace amounts of other gases.

A landfill gas collection and flare system has been constructed to reduce landfill methane gas release to the atmosphere. The system comprises a series of trenches excavated into waste that are filled with gravel with a perforated collection pipe near the bottom of the trench. The perforated pipes are connected to a buried solid pipe around the perimeter of the landfill. The solid pipe leads to the gas flare building located north of the Site entrance. There is a vacuum unit in the flare building that creates a suction that draws the gas from the waste into the gravel and perforated pipe, through the solid pipe and into the flare building. The methane in the landfill gas is burned in an enclosed flare, and the combustion gases are released to the atmosphere through a stack. The potential to generate electricity to place into the electric grid was assessed, but to date there has been an insufficient amount of methane to make this a viable option. The greenhouse gas emission from the landfill is required to be reported to Environment Canada on an annual basis by June 1 of each year.

In 2025 the gas system collected 753,416 cubic meters of landfill gas. Burning the methane within the landfill gas in the enclosed flare reduced air emissions by an equivalent of 4,163 tonnes of carbon dioxide. As a typical passenger vehicle emits about 4.6 tonnes of carbon dioxide per year (US EPA), this reduction is the equivalent of taking about 900 cars off the road for a year.

PCB Containment Cell

A polychlorinated biphenyl (PCB) containment cell was constructed in 1989 in the easternmost part of the landfill property. The containment cell is a miniature engineered landfill within the landfill. It is physically separated from the adjacent municipal landfill, and it contains about 5,500 cubic meters of dried lagoon sludge and contaminated soil containing low level PCBs that originated from a local manufacturing firm in the 1980s. There is a membrane liner on the base and sidewalls of the cell. No other PCB containing material was disposed of in the cell and the cell was capped in 1989 with a membrane and compacted clay. A fence surrounds the containment cell that restricts access. Environment and Climate Change Canada has allowed the engineered containment cell to remain in place. The cell is monitored by taking and analyzing water samples from a specialized monitoring well located underneath the membrane liner, and by taking water samples from groundwater monitoring wells surrounding the Cell. The results continue to show that the containment cell is intact and is not impacting the environment.

Environmental Monitoring

Landfill leachate can impact the quality of groundwater and surface water surrounding the Landfill. The environmental monitoring program is required to monitor for leachate impact to groundwater and surface water. Water samples are taken and analyzed to assess the results with Ministry regulatory criteria. The environmental monitoring program monitors the effectiveness of leachate control measures such as the leachate collection system and the landfill cover to determine if there is a need to implement contingency measures to improve containment if an impact is identified.

There are groundwater monitoring wells installed at different depths in the clay surrounding the perimeter of the landfill. Groundwater quality is assessed by sampling and analyzing groundwater taken from the wells. The surface water monitoring program consists of sampling the four stormwater detention ponds on the Site, and upstream and downstream in the Brown Tap Drain that the ponds discharge into. An annual monitoring report with the monitoring results is submitted to the Ministry by June 30 of each year.

The 2025 monitoring results show that the landfill is not impacting groundwater or surface water quality surrounding the site, and that the leachate collection system is functioning properly.

Capital Projects

There were no capital projects during 2025. The projects proposed for 2026 include pavement resurfacing around the Residential Waste and Recycling Drop Off Depot, paving in front of the new Storage Building, and the replacement of the inbound and outbound weigh scales.