

Heritage Advisory Committee SEP 17 2013
--

Ontario Power Generation

Lakeview Site

Heritage Impact Statement

Prepared by: Ernie U (OPG)

Date: 13 August, 2013

Schedule 1 to the Demolition Permit Request Regarding Three Ancillary Buildings at the Lakeview Generating Station Site: Heritage Impact Statement

Introduction

Ontario Power Generation Inc. (OPG) wishes to demolish three of the four remaining ancillary building at the site of the former Lakeview Generating Station (the Site). The City of Mississauga (the City) issued two permits authorizing the demolition of all buildings and structures on the Site on March 22nd, 2006 and April 26th, 2006 (see attached Appendix B). Pursuant to the City's approval, the demolition of the main structures of the Lakeview Generating Station commenced in 2006. The ancillary buildings subject to this application were included in the 2006 demolition permit approval, however, OPG retained those buildings to be used during site decommissioning. These buildings are temporary and portable in nature (see picture on page 21 of this document, below). These buildings serve no current purpose and thus, can now be demolished. Accordingly, in July 2013, OPG contracted Delsan –Aim Environmental. Services (DAES) of Concord, Ontario, to demolish these three buildings at the Site. OPG will retain the existing guardhouse at the entrance to the site for security purposes.

Background

In January 2005, the City listed the Lakeview Generating Station in its Heritage Inventory for, among other things, that it formed a significant cultural landscape and was a recognized landmark on Mississauga's waterfront. However, in March, 2001, the provincial government had announced that Lakeview would be required to stop burning coal by April, 2005. This was confirmed in October, 2003, when the provincial government directed OPG to decommission Lakeview by 2005. Given the province's coal closure policy, there was no future purpose for the facility. Thus OPG contracted Murray Demolition LP (Murray) for the demolition of the facility. Murray made an application to the City for this purpose and as required by the City, the package included a Heritage Impact Statement for the Site (see Appendix C). Murray received the attached demolition permit from the City. Accordingly, on June 12, 2006, the "Four Sisters" were demolished. On June 28, 2007, the rest of the powerhouse buildings were demolished. Thus, the primary aspects of heritage and cultural value contemplated in the City's Heritage Inventory no longer exists.

The following is a summary of the Heritage Impact Statement, prepared for your convenient reference.

Summary of Heritage Impact Statement for Lakeview Generating Station Site

Site History

Property Title Search

The Corporate Real Estate Division of Ontario Hydro conducted a property title search of the Lakeview Generating Station Site in the winter of 1996. The land assembly includes parts of Lots 7, 8 and 9, Concession 3 – SDS, all in the former Township of Toronto, County of Peel, which is now the City of Mississauga, Regional Municipality of Peel.

The title search revealed an extensive history of property transactions dating from as early as 1866. Ontario Hydro began acquiring most of the property rights at the subject site in 1959 with the last property obtained in 1970. In most instances property was granted from the Crown.

The Corporation of the Township of Toronto acquired several parcels of land from Ontario Hydro beginning in 1960, including a significant parcel of land north of the switchyard and south of Lakeshore Road which was to be sold off for industrial development. Also, in a 1983 licence agreement, Ontario Hydro permitted the Credit Valley Conservation Authority to use part of its land at the western edge of the property for the purpose of the construction of the Lakeview Promenade Park including breakwater.

The site is legally described as Part Lots 7, 8 and 9, Concession 3 SDS, and part of Water Lots, designated as Parts 1-49 on 43R-23371, City of Mississauga. The table shown on the following page lists the entities that were reported to be associated with ownership or occupation of the site during the specified time periods.

Table 1 – Property Title Search

Registered Owner(s)	Ownership Period
Part Lot 7	
His Majesty The King	July 1881 – July 1914
The Hydro-Electric Power Commission	July 1914 – June 1958
The Hydro-Electric Power Commission of Ontario (a.k.a. Ontario Hydro)	June 1958 – Present
Part Lot 8	
The Corporation of the City of Toronto	July 1892 – February 1932
His Majesty The King	February 1932 – March 1958
The Corporation of the City of Toronto	March 1958 – July 1958
The Hydro-Electric Power Commission of Ontario (a.k.a. Ontario Hydro)	July 1958 – Present
Part Lot 9	
T.S. Kennedy	January 1876 – Unknown
Anna C. Cawthra	Unknown – September 1912
His Majesty The King	September 1912 – February 1960
The Hydro-Electric Power Commission of Ontario (a.k.a. Ontario Hydro)	February 1960 – Present
Water Lot HY28	
The Crown	Prior to May 1960
The Hydro-Electric Power Commission of Ontario (a.k.a. Ontario Hydro)	May 1960 – Present
Water Lot in Front of Part Lot 9	
The Crown	Prior to January 1910
Anna C. Cawthra	January 1910 – September 1912
His Majesty The King	September 1912 – December 1958
The Corporation of the Township of Toronto	December 1958 – February 1965
The Hydro-Electric Power Commission of Ontario (a.k.a. Ontario Hydro)	February 1965 – Present
Water Lot HY77	
The Crown	Prior to June 1967
The Hydro-Electric Power Commission of Ontario (a.k.a. Ontario Hydro)	June 1967 – Present
Water Lot HY116	
The Crown	Prior to April 1970
The Hydro-Electric Power Commission of Ontario (a.k.a. Ontario Hydro)	April 1970 – Present

Long Branch Rifle Ranges and Aerodrome – 1891 to 1958

At the end of the nineteenth century, there was a rifle range located on land neighbouring the property where the Lakeview Generating Station would eventually be constructed. The rifle range came into existence after the City of Toronto had deemed in a council meeting in 1881 that the rifle range located in the city limits at that time was unsafe. The Council subsequently made a request for the Federal government to locate a site outside the city that would be more suitable. About ten years later, a new rifle range was founded in 1891 when 100 acres (40 ha) of land in Toronto Township (Lakeview) was purchased by the Federal government. The land located south of Lake Shore Road was registered as Lot 5, Con. 3, SDS. The rifle range, which fell under the jurisdiction of the Ontario Militia Department, was named the Long Branch Rifle Ranges and steadily grew in popularity with membership increasing so that by 1908 more land was purchased to increase the range to 365 acres (147.7 ha). The land acquired was Lots 4, 6, 7, 8, 9, and part of 10. The present day Lakeview Generating Station is situated on some of the land that encompassed the Rifle Ranges.

During the life of the Rifle Ranges, it was used by the Ontario Rifle Association for not only recreation but also the training of young men to prepare them for the armed forces. The Department of National Defence used the site during the Second World War (1939 – 1945) for training purposes.

Toronto Curtiss Airplane Factory, which was owned by Hammondsport, New York based Curtiss Airplane Factory opened Canada's first aerodrome and flying school at the Lakeview Rifle Ranges in May, 1915. The manager, John Alexander Douglas McCurdy (b. 1886 in Baddeck, Nova Scotia), was Canada's first aviator. The school operated for two years before being closed down in December, 1916.

In January, 1917, the Royal Flying Corps was created and the site was used as a cadet training school. Many of the pilots that graduated from this school went to England to serve with the Royal Naval Air Services during the First World War. With the growth of the Royal Flying Corps, the Rifle Ranges airfield became too small and the operation was moved to Camp Borden in Penetanguishene.

There is an Ontario Archaeological and Historical Sites Board plaque as shown in the Photo 1 on Page 5, which is located at the corner of Lakeshore Road and Hydro Road and commemorates the site of the former Aerodrome. The plaque was dedicated on September 21, 1969, and unveiled by the former Toronto Mayor Bert S. Wemp who had been a graduate of the school.



Photo 1 Historical Plaque

During the 1950s, the Toronto Township was growing rapidly and the Council wanted the land for industrial development and public purposes such as a sewage and water plants and parks. In the summer of 1954, the 350 acres (141.7 ha) Rifle Ranges property was transferred from the Department of National Defence to the Toronto Township. The Ontario Rifle Association moved its school to the Ottawa Connaught Ranges

The Lakeview Generating Station – 1958 to 2005

Lakeview Generating Station was one of five coal-fuelled generating stations operated by Ontario Power Generation. The station is situated on the north shore of Lake Ontario, in the City of Mississauga.

The construction for an eight unit coal burning generating plant by Ontario Hydro began on June 1, 1958, on 85 acres (34 ha) on the shore of Lake Ontario in Lakeview, which was purchased from the City of Toronto. The units were brought into service over the seven-year period between 1962 and 1969. Photo 2 shows an aerial photo of the site circa 1958 prior to the commencement of construction. The first unit produced power in November, 1962 and is shown in Photo 3. The road leading into the plant is called Hydro Road, where the property was used for the Rifle Ranges and the first Aerodrome. Eventually the plant would occupy 144 acres. When the first two units began operating, they were the only 300 megawatt generators in Canada. When the eight units were completed in 1968, the station was reputed to be the largest fossil station in the world, capable of producing 2400 megawatts of power and employed more than 600 staff. The eight-300 mega-watt turbo generators were built by Canadian General Electric in Peterborough.

The official opening of the Lakeview Generating Station took place on June 20, 1962, with Prime Minister John Robarts and Ontario Hydro chairman W. Ross Strike pushing the button to start up the first 300,000 kilowatt unit to produce electricity. The station was the first 3, 000,000 kilowatt thermal-electric plant in Canada. Robarts commented that, “The Lakeview Generation Station is a tangible expression of confidence in the contribution electricity would make to the continued growth and well being of the citizens of Ontario.” A plaque was unveiled that paid tribute to the spirit of cooperation that prevailed during construction.

Upon completion in 1968 at a cost of \$274 million, it became the world’s largest fossil generating station capable of producing 2.4 billion watts of power. Lakeview ran at its highest capacity during from the late 1960s and early 1980s, supplying 2,400 megawatts of the province’s electrical needs. The most dominant feature of the station is its stacks, affectionately known as the "The Four Sisters", which are about 150 metres (490 feet) tall. The stacks as shown in the following photograph are visible for miles and are used by boaters and commercial pilots as a navigational landmark.



Photo 2 Official Opening June 20, 1962 (Courtesy: Larry Onisto, OPG)



Photo 3 “The Four Sisters” (Courtesy: Larry Onisto, OPG)

When Lakeview's eight generating units were first built, they played an important role in providing customers with a reliable supply of electricity 24 hours a day, seven days a week. Recently, the station had four operating units, which supplied electricity primarily during winter and summer peaking hours for Ontario customers, operating about 20 per cent of the time.

In the early 1990s, four units of the station were rehabilitated, which upgraded major equipment and extended the service life of the units. These improvements helped Lakeview Generating Station produce electricity for customers more efficiently and reliably and with less impact on the environment.

In 1960, a docking causeway was constructed. Built of steel cells 48 feet (14.8 m) in diameter weighed down with rock and concrete, it extended 2,000 feet out into Lake Ontario. Here self-unloading ships would discharge coal onto conveyor belt that would carry it, at a rate of 2,000 tons an hour, to the storage area that could hold 2,500,000 tons of coal.

Chronology of Major Milestones June 1, 1958

- Construction begins on 52 hectares of land purchased from the City of Toronto

July 24, 1959

- Ontario Hydro announces the addition of a third and fourth 300,000 kilowatt generating unit to Lakeview by 1964

1961

- Unit 1 produces first electricity on October 30th

1962 – 1965

- Units 2 – 4 in service



Photo 4 Aerial Photo of Units 1 – 4, Circa 1964 (Courtesy: Larry Onisto, OPG)

1967 – 1969

- Units 5 – 8 in service

1969 – 1980's

- On the waterfront of Lake Ontario, “The Four Sisters” – Lakeview’s four 150 metre concrete stacks – became a familiar navigational beacon for boats, ships and airplanes.
- Lakeview ran at its highest capacity as a base load plant from the late 1960s to the early 1980s and met about 17 per cent of the province’s energy needs. During this time, Lakeview played an important role in providing an around-the-clock, reliable supply of electricity to Ontario’s energy customers.



Photo 5 Aerial Photo, 1972 (Courtesy: Larry Onisto, OPG)

1980s

- In 1980, as fuel alternatives such as nuclear units came on line at Pickering and Bruce, Lakeview's role in the electricity marketplace changed. It transitioned to a four-unit peaking plant, due to its higher costs operating only when electricity demands were highest, or other generating units were not available. In 1986, the station began to use lower-sulphur coal to reduce emissions of sulphur dioxide and nitrogen oxides.

1990 -1993

- \$1.1 billion was invested in rehabilitation to increase efficiency and reliability, and the addition of acid gas control equipment to all eight units.
- By 1992, only four units had been overhauled when repairs were halted due to the changing future outlook and to a decline in the consumer use of energy, due to economic recession.



Photo 6 Aerial Photo, 1992 (Courtesy: Larry Onisto, OPG)

1993 – 2000

- In January, 1993, reduced load forecasts resulted in the decommissioning of Units 3, 4, 7 and 8. In 1994, the plant returned to service as a four-unit peak-demand generating station, but with a much improved environmental performance.
- Lakeview continued to provide customer with a safe, reliable source of power when demand was highest, and became a key asset in times of uncertainty in the electricity marketplace. The station's location in the Greater Toronto Area made its output invaluable to some of Ontario's largest municipal utilities and industries – especially when nuclear and other generation was not available.

1998 – 2002

- In December, 1998, Ontario Hydro announced a joint venture to pursue the development of a 550 MW natural gas-fired combined cycle power plant at Lakeview. The venture was dissolved in May, 2000.
- In March, 2001, the provincial government announced that Lakeview would be required to stop burning coal by April, 2005.

2003 – 2005

- In October, 2003, the provincial government confirmed that Lakeview would close on April, 2005, with the remainder of OPG's fossil-fuelled plants removed from service by the end of 2007.

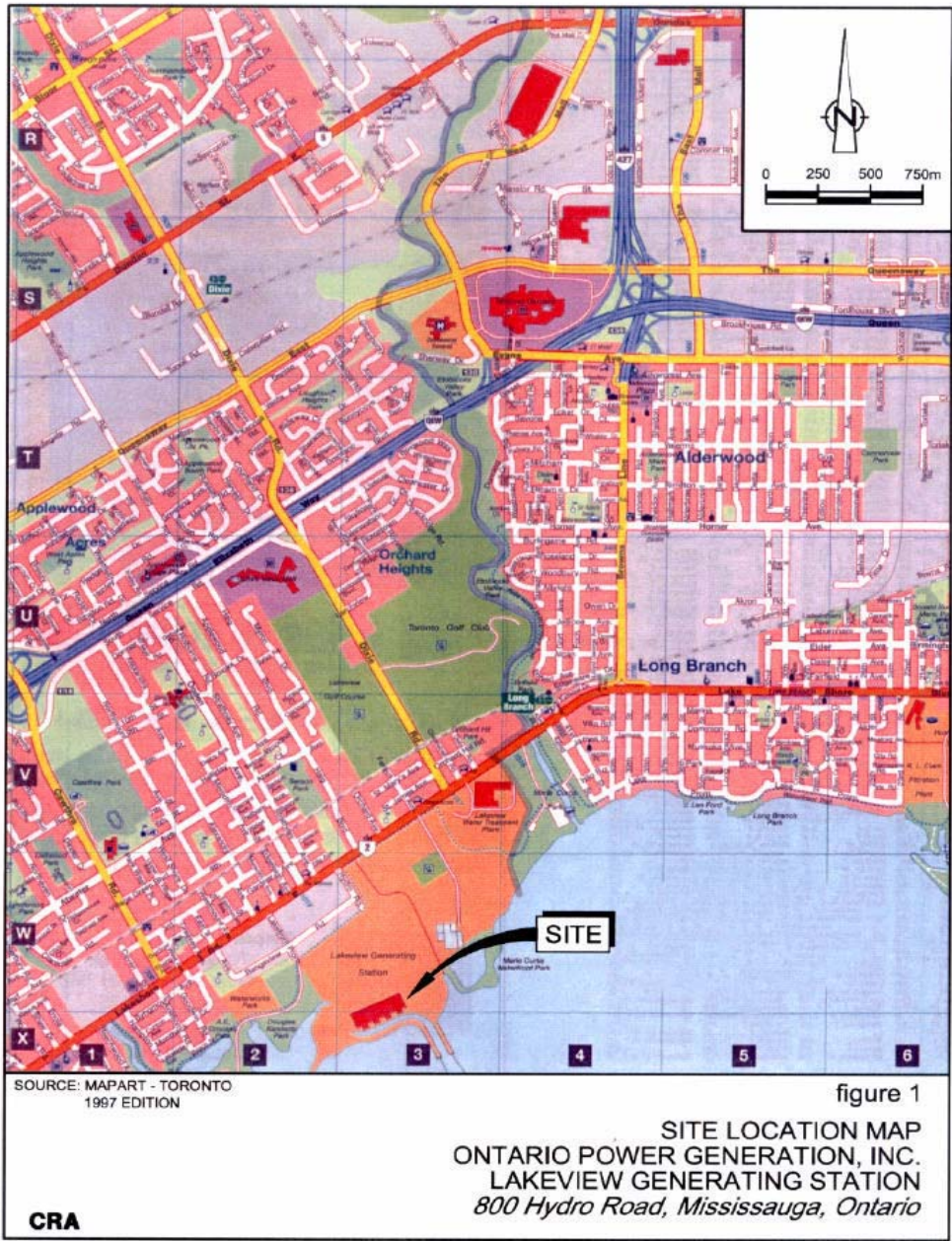
2006 – 2007

- In June 12, 2006, 'The Four Sisters' were successfully imploded by Murray Demolition LP, in order of east to west, falling to the east with a stack toppling every 4 seconds. Over a thousand spectators came to a nearby park to observe the demolition. Helicopters filled the sky, each taking footage of the event.
- June 28, 2007, The rest of the powerhouse building was demolished at 11:04am EST.

Description of the Site and the Surrounding Area

Location and Land Use

The Lakeview Generating Station is located on the north shore of Lake Ontario on 128 acres (51.2 hectares) of land in the District of Lakeview in the City of Mississauga, Ontario as shown on the following Site Location Map. The City of Mississauga Lakeview District Land Use Map (Amendment No. 11 to the City Plan) dated March 2002 shows the land use designation of the site as "Utility – Generating Station". The City of Mississauga, Planning and Building Department, Map 01 (Schedule “B” to Bylaw 5500) dated April 20, 2005, shows the site zoning as "M1 Industrial".



The Surrounding Area

The area immediately surrounding the generating station consists of different land uses from "Utility" to the east, "Business Employment" to the north and "Open Space – City Park" to the west. The Lakeview Water Pollution Control Plant is located on the neighbouring property immediately east of the plant along the shoreline of Lake Ontario. There is a greenbelt that runs southward between the two plants where a small creek called Serson Creek, flows to the lake. Bordering the west side of the property is the Lakefront Promenade Park and located a little further west is the Ministry of the Environment South Peel Lakeview Water Treatment Plant. The park and the treatment plant can be seen in the foreground of the following aerial photo with the generating station in the background.



Photo 7 Aerial Photo Looking South-East (Courtesy: Larry Onisto, OPG)

Site Description

A large storage area dominates the eastern side of the property where coal and fly ash used to be stockpiled during the operation of the plant. The storage area, as shown on the Lakeview G.S. Natural Areas Map in black, had a capacity of 2.5 million tons (2.3 million Mg) of coal and along with the conveyor equipment and associated buildings, was known collectively as the Coal Yard. The storage area was also used to store fly ash at the northern and southern ends and is surrounded by gravel areas. The conveyor equipment and structures, that were used to transport the coal from the unloading dock to the coal pile and the plant, are located adjacent to the Main Service Road on the west side of the Coal Yard. Along the shoreline, south of the Coal Yard, there are areas of rock and gravel that have been naturally re-vegetated and to the north of the fence line, cultural meadow and thicket.

On the western half of the property, the station infrastructure is dominated by the main building that houses the boilers, coal bunkers and electrical generating equipment and rises to a height of 190' (58 m) with a footprint of 391,900 square feet (36,408 m²). This massive structure called the Powerhouse is the most prominent man-made feature on the site with four, 490' (149 m) chimneys towering above the south side of the building. Ancillary buildings housing equipment to pump water are situated along the shoreline. As well, there are offices and a water treatment plant connected to the east side of the Powerhouse and storage buildings to the north. Around these building, the surrounding land is covered with asphalt, concrete and gravel as shown on the natural areas map.

There is a large switchyard, which is covered with gravel, north of the Powerhouse where the generated electricity was transmitted through power lines. Outside the fence line north of the switchyard, the remainder of the property slopes upward onto meadow and a field of mowed grass where there are two baseball diamonds and soccer pitch. There are some trees dispersed in this area. Standing in this field are transmission towers that supported the power lines leaving the generating station. A series of transmission towers further conveyed the power lines northward connecting them to the power grid system through a utility right-of-way running parallel to Hydro Road and beyond.

The southern extent of the property is bounded by Lake Ontario, which is a 7,550 square mile (19,300 km²) body of fresh water. The lake connects to the St. Lawrence Seaway and the Atlantic Ocean allowing coal-carrying ships to transport coal to the plant and unload at the plant docking facility. The lake also played an essential role in the functioning of the generating station providing water for not only the boilers in order to produce steam but also cooling the condensers and controlling dust in the Coal Yard. The shoreline was modified to accommodate the water intake requirements of the plant and to allow ships to dock and unload coal. The following aerial photo of the site, looking north, shows the early stages of plant construction in 1958, which gives an idea of the original shoreline.



Photo 8 Aerial Photo (Circa 1958) (Courtesy: Larry Onisto, OPG)

By the time the plant opened in 1962, the shoreline had been transformed. A 1000 foot (305 m) breakwater had been constructed to create an Intake Channel and Forebay, as shown on the site plan that would provide shelter for the intake pumps supplying water for the generating station. The breakwater was formed using rocks and boulders –some weighing up to 11 tons – hauled to the site by truck. A docking causeway extended from the breakwater 1,970 feet (600 m) off shore. It was constructed using 48' (14.6 m) diameter steel cells that were filled with rock and concrete. On the west side of the site, the shoreline was further altered with the construction of a Discharge Channel, which was used for the return of water to Lake Ontario. The aerial photo on the following page, shows the readily identifiable man-made features of the Intake Channel, Forebay and Discharge Channel. In subsequent years, the eastern groin of the Intake Channel, as shown on Photo 5, was extended into the lake with the addition of the hauls of three steel barges that were set in place and filled with concrete. The shoreline along the entire extent of the property has been protected with gravel and rock, as shown on the natural areas map, with the breakwater and areas south of the Coal Yard having been naturally re-vegetated with some trees, grasses and shrubs.

There are some treatment ponds on site as shown on the natural areas map – one that used to be located west of Coal Yard, as well as the Coal Yard Run-Off Pond to the south and the Ash Settling Ponds, west of the Powerhouse.



Photo 9 Aerial Photo (Circa 1962) (Courtesy: Larry Onisto, OPG)

The main entrance to the property is at the end of Hydro Road, which starts at Lakeshore Road (Hwy. 2) and runs southward. The site is secured with a chain-link fence that lines the perimeter of the property as delineated on the site plan. There are electronic gates at the main entrance where a guard house is located (Structure No. 5). Site security personnel, who are posted in this building, patrol the site and control entry into the plant. Inside the gate, an asphalt-paved roadway, called the Main Service Road, continues southward towards the lake providing access to parking areas adjacent to the Administration Building (Structure No. 78) as well as the Coal Yard Utility Building (Structure No. 79). On the east side of this roadway, there is a drainage ditch as shown on the natural areas map that drains southward toward the lake. On the other side of the ditch the property rises up slightly to the Coal Yard. There is a row of cultivated trees that line the same side of the road as well as trees that were planted in a mowed grass area east of the Administration Building. Roads branch off to the west on both sides of the Powerhouse allowing access to all sides of the plant as well as the storage area to the north and the pump houses to the south. A roadway runs along the shoreline around the Forebay eastward on top of the breakwater and onto the docking causeway. This roadway also continues westward along the shoreline and turns northward at the west extent of the property where it is identified as the West Access Roadway. Intersecting the Main Service Road, just inside the main gate, is the Switchyard Road that runs westward to provide access to the Switchyard Area as well as the Tour Centre (Structure No. 17) and some storage buildings. There is some additional landscaped areas with shrubs and trees and naturally re-vegetated areas along the Discharge Channel.

Running southward, parallel to Hydro Road, a Canadian National Rail spur line enters the plant east of the main gate. The line, which is no longer operational, spits into two with one section running parallel to the Main Service Road where it ends; the other line continues towards the north-west corner of the Powerhouse and enters the building in an area referred to as the Loading Bay.

Documentation of Site and the Existing Structures

Introduction

The following section describes the Lakeview Generating Station Site in detail including the natural and man-made features and gives a complete listing and description of all the existing structures located on the property. Only those structures that are scheduled to be demolished are documented in this report. The report references the following drawings that were provided by Ontario Power Generation, Inc. (OPG) and are reproduced in Appendix I.

- Lakeview G.S. Site Plan Buildings & Miscellaneous Structures, General Arrangement
- Lakeview G.S. Natural Areas Map

OPG has identified each of the structures on the site plan by number. This numbering system is used in this report in order to locate each of the structures on site.

Structure No. 1 – Lakeview Rehabilitation Commissioning Office / Fitness Centre

The Lakeview Rehabilitation Commissioning Office, later re-named the Fitness Centre, is not shown on the site plan that was provided with this report. It is, however, located south of the Tour Centre just east of the Switchyard. The building was constructed in 1989 and is a single storey, 50'(15.2 m) by 72' (22 m) structure that was used as office space during the rehabilitation of the plant in the early 1990s. The building floor, walls and roof are framed with timber and covered with plywood and supported on concrete piers. There are aluminium-framed windows around the building with the exterior walls being clad with steel siding. The interior walls are clad with vinyl covered drywall and the floors with vinyl tile and rug. The ceiling consists of acoustical lay-in panels and fluorescent lights supported on a suspended metal grid of tees.



Photo 1 Structure No.1 – Lakeview Rehabilitation Commissioning Office South Elevation



Photo 2 Structure No. 4 – Lakeview Rehabilitation Commissioning Office Interior

Structure No. 9 & No. 10 – HEPCO Building

Structure No. 9, identified as the HEPCO Building, is a 34' 6" by 32' (10.5 m by 9.8 m) by 10' (3 m) high structure constructed of masonry bearing walls of concrete block. The interior partition walls are also concrete block. The roof is flat steel framed with a metal pan and built-up roof and the building is founded on reinforced concrete footings with the floor being a reinforced concrete slab on grade. The building functioned as offices for personnel operating the adjacent weigh scale, which is identified on the site plan as Structure No. 10.



Photo 16 Structure No. 9 – HEPCO Building South Elevation

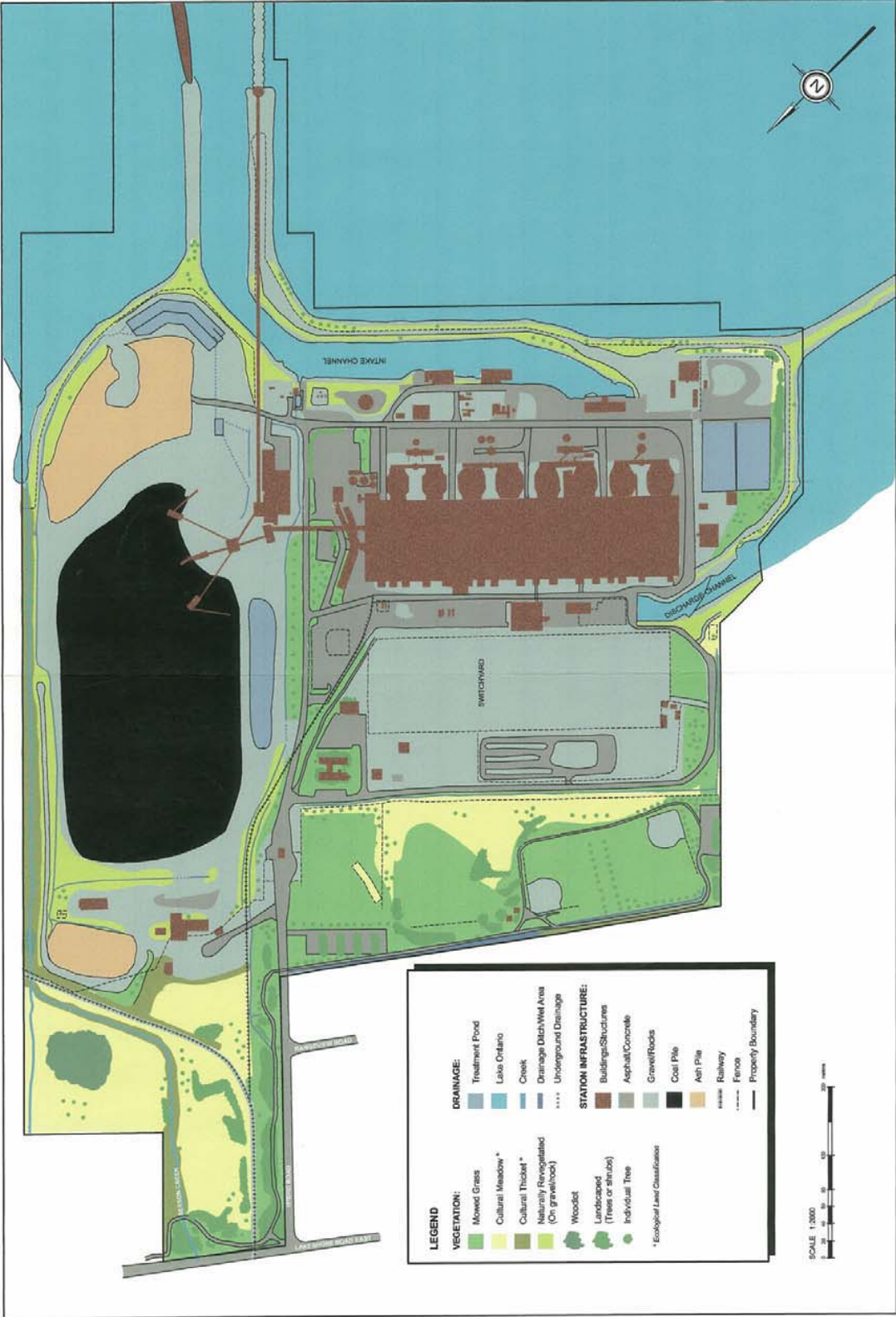
Structure No. 3 – Lakeview Rehabilitation Project office / Tour Centre

The Lakeview Rehabilitation Project Office, later re-named the Tour Centre, is shown on the site plan that was provided with this report. The building was constructed in 1989 and is a single storey, 108'-0" (32.9 m) by 86'-9" (26.4 m) by 10'h (3m) structure that was used as office space during the rehabilitation of the plant in the early 1990s. The shape of the building is similar to the letter "H". A walk-in vault is attached to a wall to the building. The building walls and roof are framed with timber and covered with plywood rest on a slab on grade. . There are aluminium-framed windows around the building with the exterior walls being clad with steel siding. The interior walls are clad with vinyl covered drywall and the floors with vinyl tile and rug. The ceiling consists of acoustical lay-in panels and fluorescent lights supported on a suspended metal grid of tees.



Appendix A – Site Plan

LAKEVIEW GS NATURAL AREAS MAP



TSENV003P06