Photo above: Opening of Gore Park; the fountain and railings were designed by the waterworks engineers.

Photo to right: Gore Park Circa 1861
Photographer Fred Sharpe
looking east from James.

Photo to left: Gore Park 1910 - 1919

Photo above: Opening of Gore Park; the fountain and railings were designed by the waterworks engineers.
The Ferguson Pumping Station is located at the base of the escarpment on Ferguson Avenue. The underground visual of this facility could be compared to the heart of the waterworks system as water enters the station from the water treatment plant and is redirected to service one of Hamilton’s most populated areas.

The original pumping station was built in 1877 and was equipped with a Killey steam pump having a 300,000 gallon per day capacity. By 1890, the population was over 45,000 and city limits were expanding. Although upgrades continued, by 1912 it was time to retire the steam pumping engines.

City engineer A.F. Macallum designed plans for the 1912 pumping station, which was constructed to the north of the 1877 facility by city workers. The new facility was equipped with two electric pumps, each with a capacity of 1 million gallons per day. Two additional pumps with the same capacity were installed to meet the needs of the mountain.

Both pumping stations co-existed until the late 1920s when the 1877 station was replaced by an addition to the 1912 building. Over the years, the...
1901 – First water mains constructed to supply water to the mountain. An air lift station at the foot of the mountain on Wentworth Street used compressed air to force water up to the brow at a rate of 65 gallons per minute.
1912 pumping station has experienced several equipment upgrades and two building expansions.

The 1912 building has surpassed its life expectancy. The city has identified health and safety and accessibility issues in the basement piping gallery. The existing equipment, while upgrades continued over the years, is in poor condition and there is no standby power.

This facility is a poignant example of aging infrastructure within the Hamilton system as it is close to 100 years old and yet has continued to provide clean, safe drinking water to Hamilton residents. The 1912 building will remain as part of the city’s heritage inventory.

The 1912 building will remain as part of the City’s heritage inventory. This facility has serviced the residents of Hamilton for almost 100 years providing clean, safe drinking water.
A report was presented to Council in 1926 that recommended the construction of a Filtration and Purification Building. The report was required as Hamilton was experiencing considerable growth and was under pressure to expand the Waterworks Distribution System. As a result, a large number of waterworks improvements were initiated in 1927. This was a time of transition from the old to the new.

In 1929, chlorine was introduced to the water supply to minimize any danger of an epidemic by any pollution in the water. A 5-foot diameter steel intake pipe was put 3,000 feet into Lake Ontario at a depth of 37 feet to draw water directly from the lake taking it to the low lift. This made it possible to permanently abandon the filtering basins to acquire water.

**Hamilton Population**

1916 – 100,461  
1926 – 123,000  
1955 – 223,000
CORNERSTONE LAID FOR NEW CITY PLANT

Mayor officiates at Ceremony at Filtration Plant; Scroll Included

With the wind threatening to sweep the entire party into Lake Ontario, Mayor Peebles at 11 o'clock this morning "well and truly" laid the corner stone of the city's new filtration plant.

Situated at the northeast corner of the filtration building, the stone contains a scroll to inform posterity that it was placed in position on this date and at this time George V was King of Great Britain and Ireland, etc., etc.

Monument was also made of the governor-general, lieutenant-governor, Dominion and provincial premiers and members of the city council.

Controller C. E. Riseley, controller of the works department, was master of ceremonies and, after reading the scroll asked Mayor Peebles to make a few remarks.

MARKS CITY’S GROWTH

His worship said that the laying of the corner stone not only marked the development of the city's water works system, but also the growth and development of the city. The filtration plant and the new reservoir were costing the taxpayers approximately $3,000,000, but with their completion Hamilton would have a water works system second to none and a water supply as good as any on the American continent. Some people were worrying about costs, but his worship pointed out that the city had kept pace with the march of progress without proportionately increasing its general expenditures or tax rate. The assessment for general purposes was today three mills lower than it was nine years ago, while the debenture rate was also a fraction less than that of nine years ago. It was, he said, gratifying to know that in spite of adverse conditions the city had not been afraid to go ahead with works necessary to provide employment for the needy.

IMPORTANT STEP MARKED

City Engineer McFaul referred to the laying of the corner stone as an important step in the development of the city's water works system, and extended thanks to members of his staff who had assisted in the work, making special mention of E. M. Whitby, H. S. Phillips, W. W. Van Every and James Stoddart.

The preliminaries over, Mayor Peebles accepted from Controller Riseley a silver trowel, and declared the corner stone "well and truly laid."
Filtration and Purification Plant

Work began in 1931 to construct a Water Filtration Plant. It was completed and in operation on March 17, 1933. The new Plant consisted of a Low Lift Pumping Station, Chemical Feed Building, Sedimentation Basins, Laboratory, 12 Rapid Sand Filter Units, a 2 million gallon clear water Reservoir and a new outdoor transformer and switching station.

An extension to the Water Filtration Plant was authorized in 1956 as the plant was operating at a rate of 50% over its designed capacity. Construction began in 1957 and was completed in May of 1959. Daily capacity increased from 40 million gallons to 80 million gallons per day.
Tunnel in the Filtration & Purification Building

Filter Units in the Filtration & Purification Building

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continued

ALLOWED TO SETTLE

After the water goes through the mixing tanks, it is delivered to two settling basins in parallel, at the end of the settling basins, it is delivered to the filter building. Where it is passed through twelve filters, collected in a filter water conduit, and conveyed to the filtered water reservoir. From the filtered water reservoir, the water is conducted in a large concrete conduit back to the high lift pumping station, where it is pumped to the main and reservoirs.

OBJECT OF ALUM

The alum treatment is given to the water to form a floc to cause the precipitation or settling of bacteria, sedimentation and algae growth, etc., in the sedimentation tanks. This treatment provides for longer runs of the filter beds and reduces the amount of wash water required in the operation of the plant. To keep down bacteria and algae growth in the mixing and settling tanks, a preliminary dose of chlorine is given at the first screen house, prior to the water entering the low lift pumps. This dose is all used up by the time the water reaches the filter building, and a very small dose of chlorine is then added to the filtered water at the entrance to the filtered water reservoir. This completes the cycle of filter plant operations, and the water is then ready for delivery to the consumers through the high lift pumping station.

STARTED APRIL, 1931

The entire plant was started in April, 1931, and completed in February, 1932, less than two years later, at a total cost to the city of $1,350,000. The actual construction cost was $1,210,000, while loss on debentures amounted to $132,000, and interest cost $18,000.

Three buildings and two structures complete the plant. The buildings are the low-shift station, the chemical and mixing plant, and the filter building, while the structures, buried underground are the settling basins and the reservoir.

The plant has a capacity of 40,000,000 gallons daily, and is unique in that no consulting firm was called upon to design it, the entire work being planned by Mr. McPaw and his staff.

The low-lift pumphouses measure 35 feet by 100 feet, with red, pressed brick and stone trim. It is carried on reinforced concrete foundations, with a steel...
June 9, 1933

Water Filtration Plant Opening - Honourable Dr. J. M. Robb, Ontario Minister of Health quoted as saying:

“The money will yield returns for years to come, and future generations will call you blessed. Any money expended on health pays untold dividends, and no city has been as fortunate as yours in this regard. Just 25 years ago, the diphtheria toll was 50 per 100,000 now it is down to 1.07. Your city has the lowest death rate on this continent from diphtheria and tuberculosis. Pure water means improved health....”
The Herald - June 9, 1933

continued

Thomson Pipe and Foundry company and Canada Iron Foundries, special castings; Crowe's Iron Works, Guelph, special floor gratings; Metallic Roofing company, Toronto, and Canadian Metal Window and Steel Products, Limited, Toronto, metal windows; Ritchie Cut Stone company, cut stone; Hamilton Bridge company, structural steel; Hamilton Guild of Metalcrafts, limited, ornamental iron; Otis-Pensom Elevator company, elevators; Currie Products, Limited, and Thomas Irwin & Son, roofing; Kent Tile and Marble Works, terrazzo and marble work; Canadian Westinghouse, limited, electric motors, switchboards, transformers, etc.; Hill Brothers and Charles Hannaford, plastering; Simplex Valve and Meter company of Canada, Toronto, filter control apparatus; Victuallco company of Toronto, pipe couplings; Smart-Turner Machine company, wash-water pumps, sewage pumps and chemical feed pumps.

The Yellow river, or Hwang-Ho, is called "China's Sorrow," because of its devastating floods.
Old Low Lift Pumping Station

The Low Lift Pumping Station building was designed for ample room to provide for growth. The plant was rated for 40 million gallons per day and could handle more in emergencies.

Photo of:
Basement of the old low lift
August, 2009
By 1947, due to the age of the low lift pumping equipment, a report was made to Council recommending that a new high lift pumping station, including 4 pumps, be constructed as an extension to the low lift. Work commenced on the high lift in 1949; one 15-million gallon per day pump and three 25-million gallon per day pumps with electrical switch gear and appurtenances were installed. Provision was made for two additional pumps when required. The high lift was put into operation on August 15, 1951.

High Lift Pumping Station
Chlorine Handling Facilities
In 1954, it was determined that cost savings could be achieved if larger purchases of chlorine were possible. This resulted in the existing chlorine handling facilities being enlarged with additional equipment. As well, an addition to the post chlorine house building with two 3-ton scales and chlorine machinery was installed. It was made large enough to include future expansion.
City engineer W.A. Wheten says he told his staff to come up with an attractive design for the pump house.” He goes on to say, “We wanted something beautiful that would enhance the eastern approaches to the city.” This type of structure has only been used a couple of times in North America.”
Beach Road Low Lift Pumping Station

While many residents today don’t know what the low lift pumping station is, they would immediately recognize the structure of the building as they enter the gateway of Hamilton from Niagara. Located on Van Wagner’s Beach Road and noted for its parabolic design roof, it is noted as one of Hamilton’s architectural heritage buildings.

Since its inception, Hamilton’s Low Lift Pumping Station has supplied water to the residents of Hamilton. It takes raw water from Lake Ontario and transports it to the Woodward Water Treatment Plant.

Throughout 2009, upgrades have been underway to ensure its continued role in supplying high quality drinking water for the residents of Hamilton. The basis of the upgrades is of an operational nature, but the aesthetics of this landmark are being enhanced as the opportunity to boost curb appeal is obtainable.

This important facility is vital to the health and well-being of Hamilton residents and the enhancement of Hamilton’s lakeshore is ongoing and monumental to the economic development of our community.
Prior to the early 1960’s, laboratory testing was initially completed in a room in the Filtration Building. Staff and testing were very limited. Most testing at that time focused on water treatment and ensuring no bacteria was in the water. It was important then as now to supply safe drinking water.

Realizing the importance of additional testing on water and wastewater, which required additional laboratories and space, new instruments and additional staff, the Environmental Laboratory was built in the early 1960s at the water and wastewater treatment location. This was an exciting time as staff moved to a building that housed different laboratories each with a different focus such as: bacteriology, chemistry and sewage. Equipment and instruments even provided the ability to now test for heavy metals in the water.
Then as now Hamilton understood the value of providing its staff with continuous learning and upgrading abilities. Through this, Hamilton was able to test for air pollution and complete the first pollen count for the city. In addition, a project was started to study algae to determine pollution levels in the water. Initially water testing in the bay was completed once a week, but as industry grew and pollution increased, testing was completed daily.

Over the years, awareness has continued to grow regarding the importance of laboratory testing on all aspects of the water and wastewater that surround us: including the water we drink, our source water from Lake Ontario as it enters the water treatment facility and the finished product as it leaves, the water in its distribution pipes throughout the city, the wastewater that enters the treatment facility and then the wastewater that leaves the treatment facility headed back to Hamilton Harbour.

Since May of 2000, and Walkerton where water became contaminated with a virulent strain of e coli, resulting in 2,300 people sick and seven deaths, new regulations and legislation to ensure safe drinking water have been initiated at record pace.
Hamilton’s New Environmental Laboratory and Operations Control Centre

Hamilton celebrated the official groundbreaking for its Environmental Laboratory and Operations Centre on August 8, 2005 with the official opening on May 26, 2007.

Throughout the years Hamilton has been a leader and the laboratory and administration building follows that pattern. It was awarded LEED (Leadership in Energy Efficient Design) Silver certification by the Canada Green Building Council in December of 2008. Hamilton’s Environmental Laboratory and Operations Control Centre is the first in Canada to receive Silver.

The Laboratory boasts many sustainable initiatives that produce a healthy and superior working environment; the key areas of focus being indoor air quality, water conservation, and energy efficiency of the building.

Winner of the Award of Merit for Architecture, 2007 and Silver Accreditation for Leadership in Energy & Environmental Design, 2009

Photo of:
Environmental Laboratory and Operations Control Centre 2008
Environmental innovations include:

- Earned all 5 Water Efficiency credits available
- Earned an Innovation and Design credit for Exceptional Performance: Innovation in Wastewater Technologies
- 65% reduction in water use for the entire building
- 99% of all site water being filtered back into the ground
- Energy consumption was significantly reduced through strategic design of the building envelope and mechanical systems
- High-performance, well-insulated fiberglass windows
- Occupancy sensors, individual room temperature controls;
- Highly efficient under floor heating and air-conditioning distribution, heat recovery ventilators, and high efficiency instantaneous hot water heaters for domestic water all help to decrease energy demand and increase thermal comfort
- The energy performance of the building was determined to be 32.4% better than the Model National Energy Code Building (MNECB) Reference building
- Anticipated 30.6% in energy cost savings
Hamilton’s Environmental Laboratory is accredited by the Canadian Association for Laboratory Accreditation for specific water and wastewater analysis. In addition the lab maintains Ministry of the Environment Laboratory Licensing for Drinking Water Testing.

Hamilton was one of the first municipalities in Ontario to have dedicated water and wastewater staff committed to ensuring compliance with impending provincial and federal legislation and regulations. Other municipalities have since followed the lead.

On June 18, 2007 City Council endorsed Hamilton’s Drinking Water Quality Management System. The system is a critical step in addressing recommendations of the Walkerton inquiry. As part of the Drinking Water Quality Management System an Operational Plan was completed and endorsed by Council in November of 2008, then submitted to the Ontario Ministry of the Environment for endorsement in 2009 to be implemented by January 1, 2010. The Operation Plan is one of the requirements for the city to obtain a Drinking Water Works Permit.

Photos of:
Inside of Environmental Laboratory and Operations Control Centre, 2008