

## Trafalgar and Derry Road Feedermain and 30 ML Zone 4 Reservoir

FEATURE PROJECT

### Project Requirements

The Trafalgar and Derry Road Feedermain and 30 ML Zone 4 Reservoir project is located in Milton, Ontario, Canada's fastest-growing community. The project entails construction of two feeder mains (Part A), and a new reservoir (Part B).

The Trafalgar Road feeder main involves the construction of approximately 3 km of 1,200 mm and 7 km of twin 900 mm water mains. The feeder main will connect to an existing one at Britannia and Trafalgar Road and the Derry Road feeder main. It will provide water to the Zone 4 reservoir, north of Fifth Side Road in Halton Hills.

The Derry Road feeder main will require approximately 3 km of 900 mm diameter water main. This section will connect the Trafalgar Road feeder main to an existing one at Fifth Line and Derry Road.

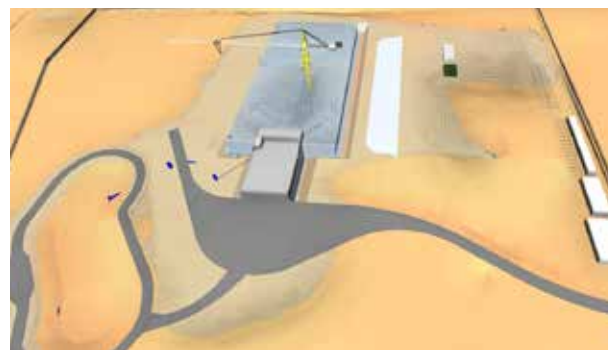
Construction of both feeder mains will involve a number of major crossings which include several watercourses, Highway 401, Regional Roads, CP rail line, Hydro One corridor, and Union Gas corridor. To minimize disruptions, thirty percent (30%) of the feeder main will be constructed using trenchless technology, either through TBM or EPBM closed-face tunneling methods. The feeder mains have been designed to be constructed in concrete pressure pipe (CPP) for the open-cut portions and concrete encased spiral wound steel pipe for the tunneling portions. TBM launch shaft locations will need to be water tight and approximately 10-12 m deep.

The Zone 4 reservoir involves the construction of a 30 ML two-cell buried concrete reservoir, valve house, emergency

overflow basin, and yard piping. This potable water reservoir will be located on Trafalgar Road, north of Fifth Side Road in the Town of Halton Hills. Its position within the site allows for future adjoining reservoirs and a separate pump station to be constructed.

The twin incoming feeder mains at the reservoir will enter the Valve House where they can be directed to either cell, or the future pumping station, through 900 mm stainless steel pipes. The chlorine concentration in the water is checked and topped up by a chemical feed system. The Valve House contains sump pumps and wash-down pumps, cell wash-down piping, HVAC equipment, and ducting.

"The project as tendered was the largest single project ever tendered by the Region," said Chris Ewen, Project Manager III, Project Engineering and Construction, Public Works, Halton Region. "The project is being constructed under the



Reservoir site overview

2012 allocation program to support both residential and industrial/commercial growth in Halton Region. The Region prequalified General Contractors and sub-contractors for the project in October and tendered the project in November of 2015. Kenaidan was awarded the project in April of 2016 and we look forward to working with them on a successful completion in January 2019."

### Roles & Responsibilities

**Owner:** The Regional Municipality of Halton  
**Prime Consultant:** Associated Engineering (Ont.) Ltd.  
**Excavation & Backfilling (Reservoir):** H & S Equipment  
**Formwork & Concrete Finishing (Reservoir):** Kenaidan Contracting Ltd.  
**Concrete Supply (Reservoir):** Ontario Redimix  
**Reinforcing Steel:** Gilbert Steel Ltd.  
**Waterproofing:** Aquanorth Contracting Ltd.  
**Electrical:** Selectra Inc.  
**Mechanical:** Kenaidan Contracting Ltd.  
**Open Cut Watermain:** Pachino Construction Co. Ltd.  
**Tunneling:** Dibco Underground Ltd.

### Team Kenaidan

**Project Director:** David Murray  
**Project Manager:** Garreth Barkey  
**Senior Site Supervisor:** Bob Saunders  
**Site Supervisor, Linear Works, Reservoir:** Michel Limoges, Dave Pimpinella  
**Mechanical Supervisor, Reservoir:** Larry Dorman  
**Project Engineers:** Kathleen Boyd, Rida Abdullah  
**Foremen:** Norm Crawford, Cory Rodgers  
**Project Administrator:** Rachna Pathak  
**Senior Estimator:** Pritesh Patel  
**Health & Safety Advisor:** Harpreet Singh  
**Business Development:** Andrea Howson (Prequalification)

### Project Scope

**Contract Services:** Part A (feeder mains) - unit rate; Part B (reservoir) - lump sum  
**Concrete:** 10,740 m<sup>3</sup>  
**Formwork:** 20,174 m<sup>2</sup>  
**Feedermain:** 10 km of 900 mm diameter; 3 km of 1,200 mm diameter  
**Mechanical:** 900 mm process piping and control valves, plumbing and drainage, and chemical systems

#### Design Features:

- Tunneling required at all water crossings, major gas utilities and Highway 401
- Green-field reservoir construction and overflow pond

#### Key Challenges:

- Working alongside 2 major roads with high volumes of traffic
- Maintaining all traffic lanes during rush hours
- Environmental protection along the 18 km route

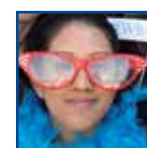
### Inside This Issue



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Eglinton Tunnel



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Warton Wastewater Treatment Plant



**ROAMING PHOTOGRAPHER**  
Health & Safety Week



# Safety Corner: Kenaidan's First Annual Health & Safety Week



By Patricia Pereira

Kenaidan kicked off the 2016 construction season with a number of successful Health & Safety initiatives. To start, we hosted and participated in our first annual Health & Safety week; in support of the North American Occupational Health & Safety week initiative. The week focused on promoting awareness in areas such as: hearing protection, working from heights, and general personal protective equipment (PPE) inspection and maintenance, including sampling new products that can better protect our work force. A special thanks to our event partners: Levitt Safety, 3M Canada, Baffin Boots, and Capital Safety. We would also like to thank the Peel Regional Police, Canadian Mental Health Association of Peel, and Priddis Environmental Solutions. Their

presentations to our staff created awareness around internet safety, mental health, and ergonomic awareness respectively.

During safety week, we also challenged our team to submit photos illustrating why they Care Enough to Act, as part of our #whyiCETA contest. Entries ranged from photos of family and friends, pets, charitable events, and co-workers. These photos were then displayed at Kenaidan's annual safety day meeting, held on June 9<sup>th</sup>, to demonstrate to our team that we have so many reasons to work healthy and safely for!

This theme of "why we work safe" was carried through into the presentations that were delivered at Kenaidan's annual safety day meeting. Our team was challenged to question their Behavioural Based Safety not only in the workplace but at home. We can all agree that Kenaidan is a tremendous supporter and advocate of training and development, not just in support of our career progression but also in the development of our Health & Safety awareness and competency. The team was asked to reflect on that training and awareness and were encouraged to carry out that same behaviour that they use at work in their homes for the protection of their family and their loved ones.

We look forward to the continued success of our Health & Safety program, and future events where we can celebrate our team's health & safety achievements.



Warton Wastewater Treatment Plant - **Back row (L to R):** Aidan Flatley, Tom Butler, Scott Masse (Selectra Contracting), Mitchell Ramberg, Rob Conlan, Ed Vankerkerle (Selectra Contracting), Chris Morrison (Selectra Contracting), Warton Willie, Steve Smith, Jeff Vallins, Sean MacArthur  
**Front Row (L to R):** Kathleen Boyd, Luke Mcguire (Selectra Contracting)

## Eglinton Crosstown LRT Western Tunnel – Tunnel Drives Complete

### POINT OF INTEREST

Congratulations to the Crosstown Transit Constructors (CTC) team for achieving an important project milestone; on April 29<sup>th</sup>, 2016, the Eglinton Crosstown project completed the last phase of tunneling works. CTC, a joint venture between Kenaidan, Obayashi, Kenny, and Technicore, commenced the project in 2013, and now, 3 years later, the light at the end of the tunnel can be seen.

The tunneling work was a mass undertaking that involved the construction of a 6.5 km, twin-bored tunnel from Black Creek Station to Yonge Street Station beneath Eglinton Avenue. Secant pile shafts were built adjacent to the existing subway line at Allen Road to extract and re-launch the tunnel boring machines (TBMs) and an emergency exit shaft structure was built between Caledonia and Dufferin Stations. Secant pile headwalls were installed at Keele, Caledonia, and Dufferin Stations. Jet grout headwalls were installed at Oakwood, Bathurst, Chaplin, Avenue, and Yonge Stations. A total of 8 cross passages between the tunnels will be installed, of which 5 are complete. Cross passages 7 and 8 required jet grouting, which was completed from the surface to provide soil stabilization prior to underground cross passage hand-mining. An extensive instrumentation system was installed to monitor settlement.

There were 4 drives with the TBMs.

- Drives 1 and 2 were launched from Black Creek to the Allen Station extraction shaft for a total of 3,500 m. Drives 1 and 2 broke through the extraction shaft wall on January 20<sup>th</sup>, 2015.
- Drives 3 and 4 launched from Allen Station to Yonge Street, for a total of 2,700 m, mined into the Yonge Station headwall on April 29<sup>th</sup> and April 27<sup>th</sup>, 2016, respectively.
- The 0.3 km section in the middle is not mined with the TBMs; this section will be completed by the follow-on contractor so as to not impede the existing subway line.

Key facts of this tunneling project:

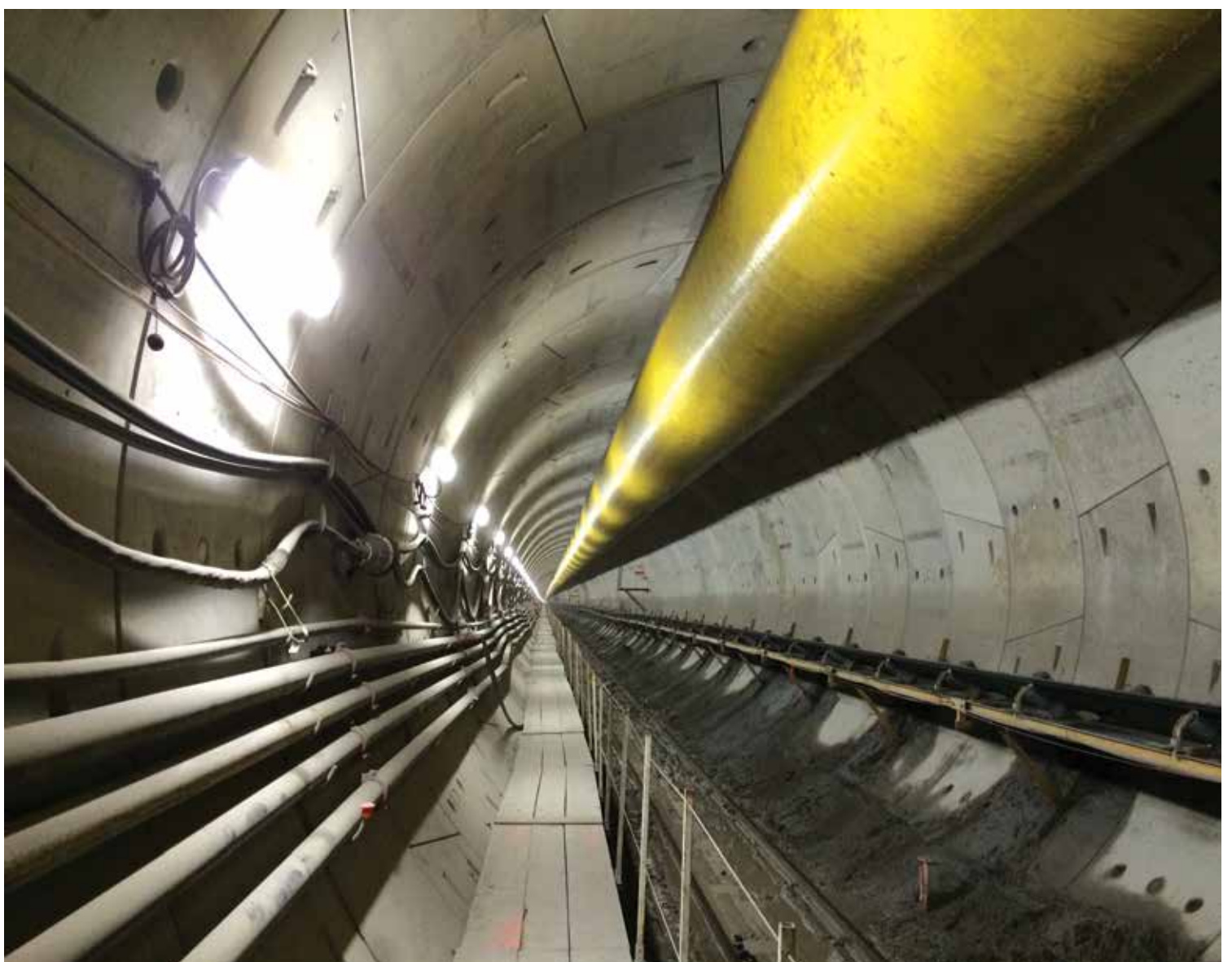
- Total delivered and installed concrete tunnel segments – 51,336
- Total man-hours to date – 1.2 million
- Total excavated material – 500,000 m<sup>3</sup> (enough to fill the ice rink at the Air Canada Centre to the top of the CN Tower!)

- Average trucking – 100 per day which is approximately 1 truck every 12 minutes, 24 hours per day
- Inside diameter of the tunnels – 5.75 m

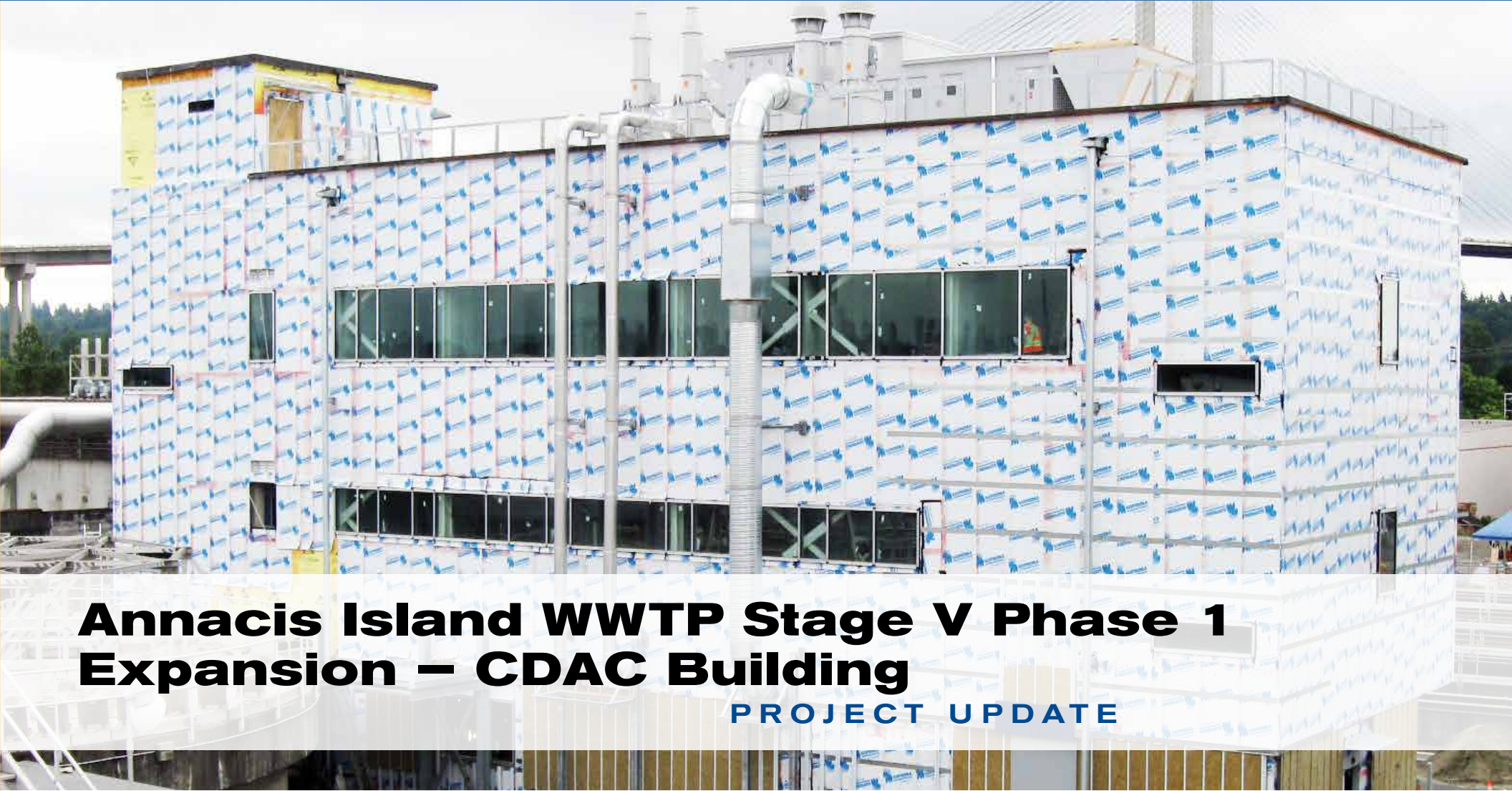
As with any project, the finished tunnel will be a source of pride, but it definitely did not come without its complexities. To begin with, Eglinton Avenue West is one of the busiest underground utility hubs in Canada. Extensive coordination between multiple utility companies and subcontractors was needed for the surface works. A jet grout system was used at multiple stations to keep existing utilities in operation during construction. The team was faced with numerous constraints involving restricted access to site, and limited time periods where work can

take place. Extensive traffic control and public relations within an urban environment were also some of the other challenges on this project.

With tunneling completed, the site team is on the home stretch of the project. There is still more work to be done and challenges to champion ahead of substantial performance which is scheduled for October 31<sup>st</sup>, 2016 and contract completion by December 16<sup>th</sup>, 2016. Once completed, this project will become part of the Eglinton Crosstown LRT, an important piece of transit infrastructure for the City of Toronto.







# Annacis Island WWTP Stage V Phase 1 Expansion – CDAC Building

PROJECT UPDATE

## Project Requirements

Located on Annacis Island in British Columbia, the CDAC administration building is part of the Annacis Island WWTP Stage V Phase 1 Expansion to increase the plant's capacity to accommodate rising demand and population growth in the Fraser Sewerage Area.

CDAC, which stands for Computerized Data Acquisition and Control, is a method of controlling the plant operations and data collection. The system provides instantaneous real-time information and feedback control.

Kenaidan's contract includes the demolition of the existing Chlorine Building, installation of 70 large diameter steel piles, most of which extended to a 40 m depth, and construction of a new three-storey, 1,350 m<sup>2</sup> administration building. The CDAC building will provide permanent accommodations for the programming staff as well as additional laboratory space required to process the increased volume of testing, resulting from the Stage V expansion.

The scope of work also includes: utilities and facility relocation and protection, re-alignment of Thickener Street, yard piping, utility connection from the existing WPE/IPS (West Plant Electrical & Influent Pumping Station) tunnel

to the new CDAC building, installation of owner-supplied CDAC controller cabinets and contractor-supplied CDAC (input/output) cabinet. The CDAC building is a post-disaster building, which means, the building is critical to the continued provision of services to the plant in the event of a natural disaster – such as a major earthquake.

Significant progress has been made since construction began in April 2015. The team overcame major challenges faced during the piling installation due to the close proximity of the new building to the existing adjacent structures which were not permitted to settle or vibrate beyond the maximum allowable levels.

The CDAC building is now fully enclosed with roofing completed. The air and vapour barrier, essential to providing a watertight building, is also reaching completion. Other significant milestones achieved include: installation of the 11,941 kg rooftop air handling unit, installation of the 600 V feeder cables in the existing congested tunnels which are now ready for termination, and commencement of elevator installation activities.

The project is scheduled to achieve substantial completion in December 2016.

## Roles & Responsibilities

**Consultant:** The Brown and Caldwell Annacis Island Stage V Team, consisting of:

- Brown and Caldwell Consultants Canada Ltd.
- Stantec Inc.
- EIC Solutions
- Klohn Crippen Berger Ltd.

**Demolition:** T&T Demolition Ltd.

**Site Work:** Gradex Construction Ltd.

**Landscaping:** Westwood Landscapes Inc.

**Steel Pile:** West Shore Constructors Limited

**Concrete Curbs/Asphalt:** Lafarge Canada Inc.

**Reinforcing Steel:** Lower Mainland Steel (1998) Ltd.

**Concrete Supply:** RMC Ready-Mix Ltd.

**Structural Metal Stud & Drywall:** Peninsula Wall and Ceiling Ltd.

**Structural Steel:** P.K. Metals Works Ltd.

**Architectural Millwork:** Techart Woodworks Ltd.

**Laboratory Casework:** H.H. Hawkins Ltd.

**Glazed Aluminum Framed System:** Semiahmoo Glass Ltd.

**Roofing & Aluminum Cladding:** Metro Roofing and Sheet Metal Ltd.

**Hydraulic Elevator:** ThyssenKrupp Elevator (Canada) Limited

**Mechanical:** Keith Plumbing and Heating Co. Ltd.

**Electrical:** MDE Enterprises Ltd.

## Project Scope

**Contract Services:** Stipulated Lump Sum

**Concrete:** 530 m<sup>3</sup>

**Formwork:** 276 m<sup>2</sup>

**Steel:** 185 tonnes

**Design Features:**

- Targeting LEED Certified
- Three storeys including a penthouse for elevator machine room and storage
- Structural steel building enclosed with aluminum composite panels (Epic Panel with Reynobond Planks), consisting of five different colours

### Key Challenges:

- Working within an existing operating plant
- Strict allowable settlement and vibration limits for structures and adjacent soil
- Confined site and work areas made mobile crane set-up difficult, as well as hoisting, and erecting of structural steel
- Coordination of deliveries due to limited site area
- Mechanical and electrical coordination to meet stringent requirements
- Installation of the replacement feeders from the west plant electrical to the new CDAC building
- Air and vapour barrier installation and inspection to ensure a watertight building

## Team Kenaidan

**Assistant Project Manager:** Bob Adedayo

**Site Supervisor:** Michel Limoges

**Mechanical Supervisor:** James Parco

**Project Engineer:** Mohammad Kamyabnejad

**Health & Safety Advisor:** Samuel Livingstone

**Estimators:** Steve Burt, Max Zhao

**Senior Scheduler:** Simon Dolanay

**Project Administrator:** Margarita Cardona

# Warton Wastewater Treatment Plant

RECENTLY COMPLETED





# Our Company, Our People

ROAMING PHOTOGRAPHER



Mark Guina, Marisa Nardini, Harpreet Khachh, Maria Liotta/Darth Vader, Acer Almassraf, and Chrisie Park hamming and hashtagging it up during Safety Week.



Bob Adedayo & Konstantin Gospodinov are all ears for the on-site, mobile hearing test at the Annacis Island WWTP CDAC Building.



Jesse House, Antonino Melo, and Mieczyslaw Wyszynski getting a few 'Likes' at the Duffin Creek WPCP during Safety Week.



**Back row (L to R):** Terry Canam, Brandon Canam, Hanna Yacoub, Kevin Greenall, Jose Sobral, Prez Wisniowski, Mitch Wyszynski, Tony Melo, Carl Johnson, Bill Crawford, Silvio Marinella, Joel Walton, Ron Hamersma, Jason Mulvihill, Maurice Wong, Tyler Peyton, Mike Healey, Kris Woronko, John LeClair, Chris Phillips, Robert Melo, Mirek Chmielewski, Jordan Walsh, Jesse Wynne, Jon Rossi, Mike Boutilier, Mark Felix, Alan MacLeod, Andrew McRorie, John MacDonald, Al Davis, Kirk Jordan, Angelo Antoniadis **Front Row (L to R):** David Luyck, Pasquale Parente, Kiarash Amini, Scott Elder, Nick Cacciocarro, Jason King, Phairlenn Windover, Manny Goncalves, Ron Young, Darrell Squires, Bruce Sloan, Sean MacArthur, Norm Crawford, Kevin Gomes **Absent:** Luke Walsh, Herman Jones, Jesse House, Ryan DeJonge, Andrei Horga, Sandra Piccini, Tony Correia



Paolo DiCarlo putting the finishing touches on the bottom cord of the John Street Pedestrian Bridge.

## Kenaidan Welcomes

Derek Steinke, Project Director - Western Canada  
 Dave Pimpinella, Site Supervisor  
 Erik Baker, Project Engineer  
 Alan Pringle, Preconstruction Manager  
 Ryan De Jesus, Project Engineer  
 Dora Goncalves, Construction Designer  
 Navid Hatami, Geosturctural Engineer

## Farewell to

Charlie Hutchings – congratulations on your retirement!

## Upcoming Events

Kenaidan's Pool & Poker Night, September 17<sup>th</sup>, 2016

## Foreman in Training Program (FIT) Update

Rob Conlan was promoted into the FIT Program as a PLH2

## Congratulations To

Archie Yu for obtaining his Gold Seal Certification for Project Manager in General Contracting  
 Valeriy Kukovskyy for obtaining his Gold Seal Certification for Estimator in General Contracting  
 Pat Parente on his promotion to M&E Coordinator  
 Michael Healey for obtaining his Red Seal Journeyman Carpenter Certification  
 Barry Bince for obtaining his Gold Seal Certification for Project Manager in Mechanical Contracting  
 Donny Di Zio for obtaining his Gold Seal Certification for Superintendent in General Contracting  
 Geoff Bernardi for obtaining his Gold Seal Certification for Construction Safety Coordinator  
 Jakub Schabowski on his promotion to Formwork Manager  
 Sharon Bains on her promotion to Administration Manager  
 Pritesh Patel on his promotion to Team Leader, Estimating

## Corporate Donations

Kenaidan recently made donations to:

- The North Toronto Hockey Association
- Volleyball Canada
- ShareLife
- Big Brothers Big Sisters of Peel
- Cystic Fibrosis Canada

## Charitable Matching Program

Kenaidan has recently matched employee donations to the following charities:

- Canadian Red Cross
- Interactive Youth Safety
- Big Brothers Big Sisters of Peel

## Contributing Editors:

Yashinta Indrawata	Jeff Mottashed
Garreth Barkey	Bob Adedayo
Bob Saunders	Alex Maini
Chris Stewart	Marisa Nardini
	Andrea Howson



## Kenaidan Integrated Management System Mission Statement:

- To provide responsible, quality construction services utilizing superior innovation and expertise.
- To develop and maintain long-term relationships with satisfied clients and suppliers.
- To create a safe, challenging and enjoyable work environment where employees share in corporate growth and success.
- To build on a sound financial base where future development is promoted over short-term gain.



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