



ITT

Water & Wastewater
Case story | Dewatering

ITT W&WW assist Vancouver International Airport in installing the new W4 de-icing pad by lowering the water table with Thompson Rotary Well Point pumps.

Vancouver International Airport (YVR) is Canada's second busiest airport and North America's second largest international passenger gateway on the West Coast with over 16 million passengers each year. YVR is located in Richmond, a suburb of Vancouver, at the mouth of the Fraser River, where the highest land point is six feet above sea level.



Larry Goldstein Photography

De-icing is an essential component of Vancouver International Airports (YVR) winter operations plan. Though the snow falls quite infrequently in that region, when it starts accumulating on the ground and aircraft wings, de-icing is necessary for aviation safety reasons.

Twenty-two different air carriers depend on the crews to man de-icing trucks at both the West and East de-icing pads. Crews spray a substance called glycol onto the wings, body and tail of aircraft. Depending on the severity of the snowfall, the type of glycol used varies. For instance, Type 1 glycol is used for defrosting, and Type 4 is used in heavier snow to prevent snow accumulation on the aircraft.

To control and manage the growing air traffic, YVR airport authority decided to construct a new de-icing pad. This project consisted of construction and related work to build the new "W4 De-Icing Pad" at the Vancouver International Airport.

The work included stripping, excavation, supply and placement of sand sub-base, placement of crushed granular base course, supply and placement of cement stabilized base, supply and placement of Portland cement concrete, supply and placement of asphalt paving, taxiway and overhead electrical work and various underground storm sewers and de-icing fluid containment appurtenances.

The project was awarded to JJM Construction and the installation of underground storm sewers and de-icing fluid containment appurtenances required lowering water table / de-pressuring underground soil. At this point, JJM Construction contacted Mr. Kamal Singh, (ASCT.), Dewatering Specialist at ITT Water & Wastewater. After numerous meeting with Jens Anderson and Andrew Higginson from JJM Construction, Kamal Singh proposed to de-pressurize underground soil using well pointing. He observed that the site was next to an active runway and it would only be possible to work over night (i.e. from 10 PM to 6 AM). During these hours, YVR airport authority would shut down the runway and re-open it every morning. Mr. Singh also observed the turbulence from jet engines could easily suck PVC well point pipe and there was no water supply that could be used for jetting well point.



Diesel well point pump connected with header and swing pipes.

Engineered for life

He proposed to use Thompson 8" Rotary Well Point Pump. In combination with the Rotary Well Point pump, he proposed to use premium well points every 3 feet apart and to a depth of 21 feet which gave extra confidence in lowering water table / de-pressurizing underground soil. To jet the well points in the ground, creek water was proposed. The creek was approximately 500 feet away from the jetting site hence a high pressure 4" JSC Thompson pump was used to achieve pressures up to 130 PSI.

Thrust blocks were placed and well point header pipe was tied to the thrust blocks so that it did not get blown away from the turbulence produced by jet engines. A standby pump was kept on-site in case of an emergency and a double walled diesel tank was placed for 24/7 operations.

The system was proposed and rapidly accepted by the JJM Construction. ITT W&WW mechanics began to put together well points, header pipe, swing pipes and hoses.

Once installed, the well point pumps operated flawlessly and at finest levels as forecasted. Within 4 weeks, JJM was able to pour concrete in the foundation and was highly thankful to ITT Water and Wastewater.

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ITT Water & Wastewater - Dewatering division

Created to meet the increasing demands for a full fledged solution driven company, the Dewatering division mandate is to engineer, manage and supply major temporary site dewatering and sewage bypass projects in the municipal, construction, industrial and mining sectors. On-site project supervision, technical expertise and equipment maintenance services are also offered.

Built on ITT's 50 years of Canadian water handling experience, the Dewatering division specializes in effective and environmentally secure water and wastewater transfer applications such as Sewage Bypass, Excavation Dewatering, Flood Drainage, Surface Irrigation and Mining Dewatering.

ITT W&WW also offers a full service rentals program. A complete line of submersible pumps, engine-driven suction pumps, generators, piping and complementary accessories are available for either long or short-term rental. With 14 coast to coast service locations, ITT W&WW is the only nation-wide company to offer complete turn-key water handling solutions, expertise and products.

