



Graham-Aecon's Pump Installation



THE CLIENT

Graham-Aecon Joint Venture (GAJV) is a partnership between two of Canada's leading construction companies. They came together to upgrade the Influent Pumping Station at the Annacis Island Wastewater Treatment Plant in Delta, BC.

THE PROBLEM

GAJV came to us with a significant challenge: they needed a massive new pump fitted into an old building on a busy and potentially chaotic site. Usually, a pump of this size—a 1200 horsepower EBARA Influent Pump 4—would be installed in a completely new setting. But in this case, we were asked to retrofit this pump into the existing building, onto the standing foundation, making this a very unconventional installation. In addition, the end user had very strict requirements, which left very minimal margins for error. GAJV required that our measurements be accurate to 0.05 millimeters over 1 meter.

During the course of the project, certain complications arose, such as the detection of "soft foot" in the setting for the pump. This meant that the weight of the motor was causing the platform legs to sag, creating a stress-induced soft foot, and leaving the motor platform not perfectly rigid.

As well, projects like this require accurate reporting and extensive communication with our valued partners. Throughout the project, we observed significant differences in opinion between the client, the pump manufacturers, and the engineers, which contributed to the ongoing communication challenges.



QUALITY SOLUTIONS YOU CAN COUNT ON



Mainland Machinery prides ourselves on our ability to not only build top quality steel fabrication, but also on our ability to build strong, long-lasting, relationships with all of our customers. Regardless of scale or complexity, we work hand in hand with our customers to help them achieve their goals.

THE SOLUTION

Mainland was fully prepared to make regular visits to the site with high-precision equipment to verify alignment throughout the course of the project. With the latest technology in laser levels (FixturLaser) and alignments tools, we were equipped to perform measurements accurately to 0.01 mm over 1 m. When faced with the challenges of an unconventional installation, our team proactively devised methods to rely on the successful use of the laser equipment and maintain correct readouts.

With the FixturLaser, we were able to ensure that the pump casing was level by checking the flat liners/shims prior to grouting. All flat liners were level within tolerance. As well, we machined a bar to go across the top flange of the pump (with points that the level could sit on). Once everything was set correctly, we welded the tapered liners (tapered shims).

The alignment of the shafts from the motor and from the pump was also checked by laser and was found to be performing almost perfectly (with only 10 microns of parallel misalignment being detected in the North-South direction).

During the installation, we thoroughly reported to the client the soft foot that was detected on the motor platform, and we made the necessary repairs.

In certain cases, we chose to outsource machining to Eagle Machine in order to maintain the highest standards of quality.

As we encountered communication challenges on the job site between the client, the pump manufacturers, and the engineers, we seized the opportunity to resolve issues and to provide direction.





THE OUTCOME

In the end, the new EBARA Influent Pump was successfully installed, tested, and commissioned at the Wastewater Treatment Plant, which resulted in a significant upgrade to their systems.

All the necessary reports and documentation were submitted and the client, GAJV, expressed their gratitude and satisfaction.

They recognized the challenges that were overcome, but they were appreciative of all the hard work and effort that the Mainland team put into the project.

“I really appreciate all of the hard work and effort put in by the Mainland team. This pump installation project has been tough, with its fair share of challenges over the year, but the Mainland team’s eagerness to work collaboratively and help us reach this successful end is greatly appreciated.”

—**Tania Akehurst**

Project Coordinator, Influent Pumping Station (IPS) Expansion, Annacis Island Wastewater Treatment Plant, Graham-Aecon Joint Venture



NOTES

Quality solutions you can count on.

A large grid of graph paper for taking notes, consisting of a light gray background with a fine grid of blue lines.