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# SPECIAL FEATURE INFRASTRUCTURE

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# Greater Victoria Harbour upgrades allow for Quantum-class cruise ships

PETER KENTER  
CORRESPONDENT

Expanding the docking infrastructure of Greater Victoria Harbour is a critical step that will allow the facility to dock larger Quantum-class cruise ships that now commonly ply the oceans nearby. It's a project that the Greater Victoria Harbour Authority (GVHA) intends to complete by May 2019 — even considering the loss of purpose-built giant steel monopiles that were lost at sea on the way to the project site.

The marine structures used to berth and moor vessels are known as “dolphins.” This \$6.8 million expansion project involves extending the existing dolphin structure of Pier B at Ogden Point port in Victoria by more than 55 metres, then adding a breasting dolphin, an additional structure that restricts the longitudinal movement of the ship when it's moored near the pier. The infrastructure improvements will allow the harbour to serve cruise ships of up to 200,000 gross tons. The project is being jointly funded by the GVHA and the federal Ministry of Infrastructure and Communities, which contributed \$1.9 million.

The construction project was awarded to Ruskin Construction Ltd. through a competitive bid process. Work began in October 2018 with the installation of falsework to temporarily support pouring of the concrete bollard platforms to which the ships will be moored.

“The project was initiated as a lump sum, stipulated price contract,” says Mark Crisp, director of infrastructure with the GVHA. “However, our best laid plans were cast aside when we heard a few days ago that the giant custom-built monopiles and some of the steelwork that was being shipped here by transport ship from Hong Kong fell over-



KEES TORN, FLICKR

Pictured here is the Ovation of the Seas, a Quantum-class cruise ship operated by Royal Caribbean International, which is expected to visit GVHA regularly beginning in May.

board only 250 kilometres from the delivery point. With the impact of the lost steel, our consulting engineers and the contractors at Ruskin Construction are refocusing on some key parts of the project with a design-build approach to attempt to catch up on the schedule.”

All told, the shipping company lost two monopiles of 10 feet in diameter, two walkway support piles of 36 inches in diameter and another four protection piles of 36 inches in diameter.

The existing dolphin is located approximately 74 metres from the end of the original pier structure and was built around 1913 using concrete caissons and fill. The first design for the new extension involved extending that dolphin by 55 metres and then supporting the new breasting dolphin using a single monopile, three metres in diameter.

“We preferred the monopile design because it was cost effective, had a minimal footprint

and provides good stability characteristics against ocean currents,” says Crisp. “But you can't pull a monopile like that off the shelf at Home Depot, so we're looking at an altered design using multiple steel piles while still meeting the requirements of larger vessels.”

The replacement design will involve multiple piles of approximately 60 metres in length with about 14 metres exposed above the sea bed, depending on the depth of the

bedrock. Either design involves considerable construction challenges.

“This is a very busy port with several other major projects underway this year,” says Crisp. “This project is also adjacent to a Heli-jet aerodrome and a float plane terminal for Harbour Air, so air safety is a priority as well. The team is also working closely with federal authorities to ensure communication and management of construction and navigational movements. An environmental consultant is also engaged in monitoring construction activities and its impacts on habitat.”

The Ovation of the Seas, owned and operated by Royal Caribbean International, is one of the ships that has committed to a regular Victoria Harbour stop, beginning in May. The ship measure 348 metres in length, features 18 decks and can accommodate as many as 4,900 passengers — about 1,000 more passengers than the Royal Caribbean vessel that moored at the harbour previously.

“If the ship arrives before work is completed, the harbour authority is currently working with Royal Caribbean Cruise Lines and with the Pacific Pilotage Authority to accommodate the vessel on a temporary basis,” says Crisp. “This is a very active and evolving project as we work to lock down the right solution.”

## CentrePort's steady growth expected to continue in 2019

MYRON LOVE  
CORRESPONDENT

CentrePort Canada, located on the west side of Winnipeg, is North America's largest inland port, offering 20,000 acres of high-quality, affordable industrial land and unique access to tri-modal transportation.

The site offers easy access to Winnipeg's James Richardson International Airport — which operates on a 24 hour basis. And, over the past few years, the road system in the area has been considerably upgraded to improve trucking access and more efficient transportation. A new water treatment plant and water servicing has also been put in place within the past year.

Two years ago, a 700-acre rail park was completed at the site. The rail park allows industrial and commercial operations to access truck transport out of their front doors and rail transportation out of their back doors.

The latest stage in the CentrePort Canada's ongoing growth is the development of a further block of 300 acres. Currently, two major projects are underway — with a third in the planning.

Sam Sidhu's Whiteland Services has purchased 80 acres in CentrePort North (in the Rural Municipality of Rosser adjoining Winnipeg) and has announced an investment of about \$26-million on design-build facilities for prospective tenants.

“Tailieu Construction has completed the sewer and water lines and is now working on the roads,” Sidhu reports. “We will start building when our development is 70 per cent sold. Nine tenants are ready to build right away.”

While this is the first Winnipeg development for Whiteland, the company has owned property in the area and has undertaken several commercial and industrial developments in Saskatchewan as well as in India before Sidhu and his business partner Amritpal Jhand immigrated to Canada 12 years ago.

The property will be configured into smaller lots with roadways that will be designed to allow easy access for transportation companies with double-trailer rigs. The land is already zoned for general industrial uses, including manufacturing, distribution, warehousing, logistics and transportation-related businesses.

It is located directly north of the 150-acre

Brookside Business Park, which is sold out and its northern property line is along the route of the proposed extension of Chief Peguis Trail.

In September, Alberta-based Canada West Ltd. announced major new projects at CentrePort. Canada West, along with a partner, are investing \$60 million to build up to eight build-to-suit and build-to-lease buildings on five lots totaling 26 acres within the Brookside Business Park.

Dale Klein, President of Canada West, says they will provide tenants with first class facilities for industrial clients. The new buildings, which will total over 350,000 square feet combined, will feature high-end finishes, landscaped exteriors, and a mix of space for distribution, offices and customer-facing retail/showroom areas.

Site work was scheduled to begin in early November on a 50,000-square-foot building followed closely by a second 52,000-square-foot building started very soon after. Klein estimates that the development will be fully built up within 24 months.

“We are going with Pre-Con Builders,” he reports.

What will stand out about the Canada West facilities, Klein notes, will be the inclusion of a Butler roof system which, he explains, requires fewer support posts.

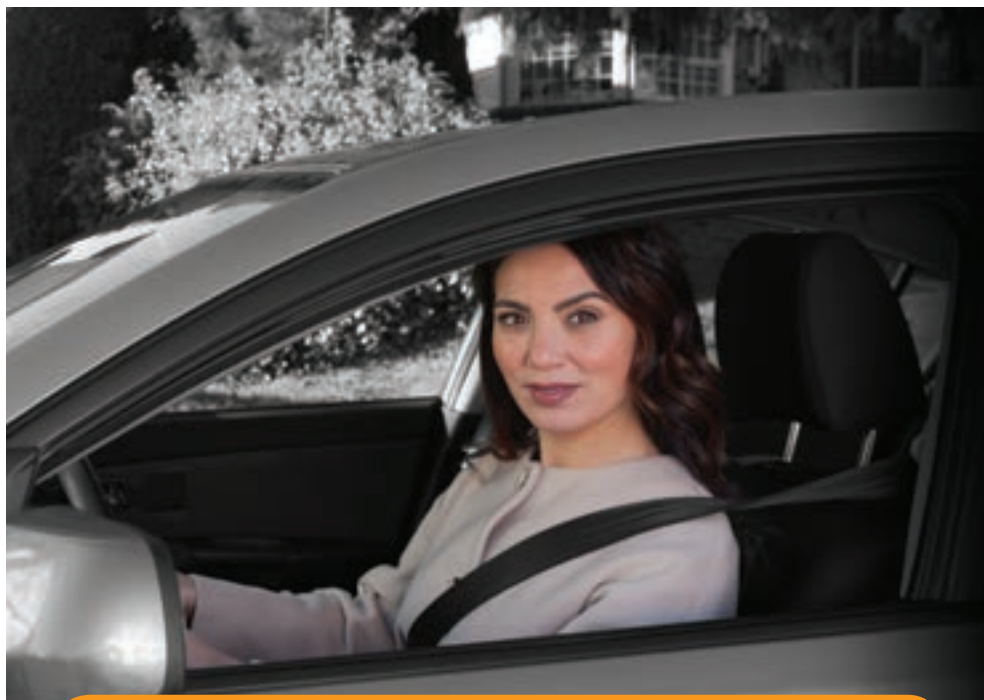
“Instead of four posts for every 50 feet, our buildings will have one,” he points out. “It is better for logistics and the roofs have a 40-year life span.”

The buildings will have more glass than normal, 32” under deck clearance, grade beams which can be adjusted according to the load and space requirements and the potential to increase the power to support potential future car loads.

The major challenge that Klein identifies in building Canada West's new project is the increased cost of construction, especially in Winnipeg as compared to Alberta.

“We are seeing a good response from prospective tenants,” Klein says of the project. “There are a lot of new industrial and commercial-use buildings, but not many are being built for individual tenants. It looks to be a very good market.”

The first of Canada West's 50,000-square foot buildings is expected to be ready for occupancy in June.



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## Shea Emry - Wellmen<sup>©</sup>



Shea Emry, is a 2x Grey Cup Champion and All-Star Middle Linebacker. He was also voted twice as the nastiest player in the Canadian Football League during his 8 year career. Since retiring a few years ago - Shea has transitioned to tackling on a new field: men's health and development. He is a National Champion for The Canadian Men's Health Foundation and Bell's Let's Talk Campaign.

After a significant concussion in 2011 - Shea founded Wellmen, an action based men's adventure club that proves being a 'real man' is about being a balanced man; no tear, grunt, or hard work left out. Wellmen's aim is to REWILD men by teaching them modern day survival skills.

He's going to share his experiences and explain why simple activities are the most essential aspect to our health and well-being.



## Donna Grant - SCOTT Construction



Donna Grant has been a member of the Scott Construction Group Mental Health Committee since she joined the company in 2016. Certified in Mental Health First Aid, she and the members of the committee have crafted an award-winning program to support mental health and remove the stigma of mental illness from their workplace. Donna has charted a unique course as a marketing professional in the Lower Mainland for more than 30 years, creating programs for post-secondary student motivation and wellness, writing and editing for numerous business publications and health & wellness books, as well as managing marketing departments for multiple companies in the construction and environmental realms. She is also the Director of Community for the Canadian Construction Women Association. Donna is passionate about creating solutions for community needs, founding the Circle of Literacy book donation program and Career Possibilities student speaker series.

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# UBC Life Sciences Building upgrades a logistical challenge

**NATHAN MEDCALF**  
CORRESPONDENT

The University of British Columbia (UBC) best-in-the-nation Life Sciences program is upgrading its Life Sciences facilities by renovating two existing wings, while tearing down one other, and then renovating another wing. The university's Renew program prioritizes refurbishing old buildings instead of tearing them down.

The Life Sciences building comprises of four wings that envelop a court yard and houses state-of-the-art laboratories, aquaria, research spaces, classrooms, offices and more.

Scott Construction is the general contractor of the project, which is expected to be completed in 2019.

"We are the construction managers/general contractors on the project. We manage all the trades, budget, schedules and quality of work," says Trenton Berger, Project Manager, Scott Construction Group.

Scott Construction demolished the existing centre building. In the North Wing, they gutted the interior and exterior, but left the structure in place. Then they excavated all around the building and seismically upgraded the building as part of a complete building retrofit and redesign.

"In order to seismically upgrade the building to new code/standards in preparation for the next big earthquake, we drilled into existing concrete, added more rebar and concrete to make everything bigger and thicker. Then we add exterior plates and steel, so the building can take greater forces of compression and contortion, as well as different lateral movements," says Berger.

They also constructed a brand-new East Wing, which is a life science teaching lab. The South and West wings remained almost untouched, except where the buildings tied into the center building.

"We had to upgrade and redo the interior of the South and West (wings) where the centre building tied in. They also had to install a new generator outside the South Wing and plumb



SCOTT CONSTRUCTION

There were many unknowns and different design interpretations of the UBC Life Sciences building for Scott Construction to tackle and plan around.

all four buildings for it. They are also providing all the landscape work.

"We manage the work by breaking the job down into two big jobs and five smaller jobs," says Berger.

Scott Construction says there were three extraordinary challenges on this job: access, contamination and unknown conditions.

The drawings for the North Building were drawn in the 70's and they were hand-sketched, so they sometimes provided only the approximate location of items and didn't include information about more recent refurbishments or other changes to the buildings.

"There were so many unknowns and different design interpretations that we have more than 500 RFI and more than 100 site instructions," says Berger.

Therefore, the designers, Diamond Schmitt Architects, hired local consultants to manage all the paperwork to deal with all the changes caused by the numerous unknown site conditions. "There are so many changes, we had to add more staff, work more hours, have more meetings and do some intensive problem solving in order to keep making progress."

And, the company is making progress on this project despite only having limited access to the site.

"There is only one access road in and one access road out, so to manage that challenge we had to be diligent at communicating road access needs and coordinating how and when deliveries can take place," says Berger.

The only other access is from a busy street with a lot of pedestrian traffic.

"There are restrictions on running a truck on the road, so we have to be proactive with UBC, user groups who use the facilities and the trades working on the project about when we needed access to that road, so it could be shut down to non-construction traffic. That's a big challenge; you have a lot of supplies and a lot of equipment, such as telehandlers and trucks. And, for efficiency and safety reasons, all groups have to be on the same page."

The third major challenge was the safe and responsible removal of contaminated items and ensuring all remaining items are non-contaminated. Several building materials that were removed during the demolition stage, including tiles, insulation, caulking and asbestos pipe were contaminated. Then, contamination degraded off the pipes and got into the soil.

"Before demolition, we had to line all the soil in the basement with poly and plywood so the asbestos and dust wouldn't fly up. Then we had to carefully scrape and excavate the contaminated soil," says Berger.

Despite several big challenges, the project is progressing. And, as a result of them, Scott Construction has proven themselves as a competent and creative problem solver in the construction industry.

"There were a lot of unknowns and we were constantly learning and rising to new challenges all the way through," says Berger.



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Seismic upgrades and both interior and exterior improvements were among the work done on the UBC Life Sciences building which has four wings.



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