

Storage Doubles

RICHARDSON UPGRADES NORTH VANCOUVER TERMINAL TO HANDLE HIGHER VOLUMES



Richardson International's export terminal in North Vancouver, BC, Canada. New 80,000-metric-tonne slipform concrete annex is the gray section at right. Photo courtesy of Richardson International.



RICHARDSON

Richardson International Ltd.
Winnipeg, MB • 204-934-5961

Founded: 1857

Number of employees: 2,500

Crops handled: Canadian western spring wheat, durum wheat, canola, peas, oats, malting barley

Services: Grain handling and merchandising, agronomy, ag financing, oilseed processing, oat milling, crop research

Key personnel:

- Curt Vossen, president and CEO
- Darwin Sobkow, executive vice-president, agribusiness and processing operations
- Phil Hulina, senior director of operations

- Brad Sutton, director of operations, North Vancouver
- Brian Olson, project principal
- Devon Maharaj, project manager
- Andrew Kammerloch, project manager
- Brian Hyland, electrical and controls

Supplier List

- Barge crane**Amix Heavy Lift Ltd.
- Bucket elevator**Nordstrong Equipment Ltd.
- Control system**..... Andritz Automation Ltd.
- Conveyors (belt)**..... Hi Roller Conveyors
- Conveyors (drag)** Nordstrong Equipment Ltd.
- Design-build contractor**.....FWS Western Ltd.
- Distributors** Nordstrong Equipment Ltd.
- Dust collection system**.....Apollo Sheet Metal Ltd.
- Dust filters**..... Conquest Equipment Corp.
- Electrical contractors** ... Houle Electric Ltd., Mott Electric GP
- Elevator buckets**Maxi-Lift, Inc.
- Engineering**FWS Western Ltd.
- Foundations**.....West Shore Constructors Ltd.
- Leg belting**.....Fenner Dunlop
- Level indicators**..... CMC Industrial Electronics
- Rebar** LMS Reinforcing Steel Group
- Roofing**..... Franklin Roofing Systems Ltd.
- Roof towers**.....Ramsay Machine Works Ltd.
- Screw feeders**.....G.J. Vis Enterprises
- Silo hoppers**.....Ramsay Machine Works Ltd.
- Slipform equipment supplier**....Scanada International Inc.
- Structural steel**..... Tri-Tech Machine Ltd.,
Mega-Tech Engineering Ltd.
- Underground services**Ponte Bros. Contracting Ltd.

The Richardson International export terminal at North Vancouver, BC (604-987-8855), has been a fixture on the Vancouver harbor with its bright orange silos since 1928.

Ninety years later, the terminal has nearly doubled in length and more than doubled in capacity, with a new 80,000-metric-tonne (2.9-million-bushel) slipform concrete annex at its far eastern end. Consisting of 28 new storage tanks, 12 square bins, and 12 interstices, the addition, which was fully in operation June 1, brings the total storage capacity at North Vancouver to 178,000 metric tonnes (nearly 6.5 million bushels).



Brad Sutton

Director of Operations Brad Sutton, who has been in that position since 2003, notes that a series of acquisitions starting in the 2007 with several Saskatchewan Wheat Pool locations, has increased the family-held company's grain volume steadily. "At 75,000 tonnes (2.75 million bushels), we



Two 1,450-tonne-per-hour Hi Roller enclosed belt conveyors carry grain out to the new storage. Ground-level photos by Ed Zdrojewski.

had the second smallest terminal in the Vancouver area,” he says.

With the end of the Canadian Wheat Board monopoly on marketing wheat and barley, the volume of those commodities also has increased for Richardson, Sutton adds.

To construct the C\$140 million slip-form concrete annex, Richardson hired the Canadian design-builder The FWS Group of Companies, Winnipeg, MB (204-487-2500), to provide an integrated design-build solution. The FWS team collaborated with Richardson’s personnel on process design and planning, before self-performing detailed design, concrete works (including the slipformed annex), structural steel, and equipment setting. FWS also served as overall construction manager for all other works. “FWS has a long track record of building our Richardson Pioneer grain terminals in the Prairies and our canola processing plant in Yorkton, SK,” says Project Principal Brian Olson. “Our engineering teams have worked well together in the past, so it was an easy decision to choose FWS for our Vancouver expansion project. The finished project has proven that it was the right decision.

Among the other major contractors on the project:

- Scanada International Inc., Bow, NH (603-229-0014), supplied the equipment for performing the concrete slip.

- Andritz Automation Ltd, Bellingham, WA (603-229-0014), provided the control system for the annex.

- Houle Electric Ltd., Burnaby, BC (604-434-2681), and Mott Electric GP, Vancouver, BC (604-683-5752), served

as electrical contractors.

On the Richardson International staff, Sutton singled out Project Manager Devon Maharaj for his contributions to the project. “He coordinated the scheduling on the project with operations, which we continued throughout construction,” Sutton says. “That was no small task.”

The site had to remain fully operational through all project phases and both Richardson and FWS acknowledged this could only occur with effective collaboration and communication among all involved parties.

In 2015, in spite of the construction, the North Vancouver terminal loaded 5.25 million tonnes (192.5 million bushels) of grain and grain products onto oceangoing vessels bound primarily for Asia. That was up from about 5 million tonnes (183.3 million bushels) in 2014.

The annex began operations in December 2015 after approximately 13 months of construction. Much of the lifting for the project was accomplished with a barge-mounted crane supplied by Amix Heavy Lift Ltd., New Westminster, BC (888-600-2649).

Project Specifications

The main tanks in the annex stand 32 feet in diameter and 138 feet tall and hold 2,500 tonnes (91,666 bushels) each. In between these tanks are twelve 600-tonne (22,000-bushel) interstice bins. In addition, six square 350-tonne tanks are dedicated to grain screening pellets. Six additional 350-tonne bins are used for smaller select storage needs.

Each of the 52 tanks and interstice

bins are equipped with 45-degree steel hopper bottoms eliminating the need for sweep augers or for workers to enter the tank at all.

The tanks also are equipped with CMC sonar-type level indicators but no aeration or grain temperature monitoring equipment. Sutton notes that given the huge volume of grain being exported through the Richardson terminal, none of it stays around long enough for quality to become an issue.

Grain is sent out to the new annex from existing receiving equipment via two lines of cascading 1,450-tonne-per-hour (approximately 53,000-bph) Hi Roller Hi Life enclosed belt conveyors. Nordstrong two-way valves divert grain into individual tanks or the next conveyor.

Tanks empty through the hoppers onto pair of 1,450-tonne-per-hour (approximately 45,000-bph) Hi Roller Hi Life at grade enclosed belt conveyors, which run back to existing elevating equipment.

A motor control center for the annex is included on the structure’s rooftop.

In addition to the grain storage and handling equipment for the annex, FWS also installed a 1,100-tonne-per-hour (40,000 bph) leg outfitted with two rows of 22x8 Maxi-Lift orange Tiger-Tuff buckets mounted on a 48-inch Fenner Dunlop belt. The leg elevates grain from an existing cleaning house with equipment designed to clean to Canadian export standards. “The idea is to keep the pipeline running during constant shiploading and receiving operations,” Sutton says.

Since beginning operation, he says, the annex has handled approximately 2 million tonnes (nearly 75 million bushels) of grain.

Ed Zdrojewski, editor



New annex at the North Vancouver terminal as viewed from a municipal walking trail on a bluff overlooking the harbor.



New Nordstrong 1,100-tonne-per-hour leg serves an existing cleaning house.

Canadian Building Boom

Richardson International

- Building a new grain elevator at Dauphin, MB.
- Upgrading elevators at Marshall and Estevan, SK; Morinville, AB.
- Expanding canola processing plant in Lethbridge, AB.
- New C\$20 million research, demonstration farm in Richardson, SK.

G3

- In late May received a project permit from the Vancouver Fraser Port Authority to construct an export terminal in North Vancouver, BC.
- In early January began operations at two new grain elevators – Pasqua, SK and Glenlea, MB.
- Building a 50,000-tonne lake terminal at the Port of Hamilton, ON.

Viterra

- Began operations at two new grain elevators – Grimshaw, AB in Nov. 2015 and Kindersley, SK in April 2016.

Paterson Grain

- Building new 55,000-tonne grain elevators at Daysland and Bowden, AB.

Cargill

- In late June finished upgrades at its 25,000-tonne grain elevator in Davidson, SK.
- In the past five years has invested \$300 million in grain handling assets in Saskatchewan.