

Northern Rail Terminal

WISCONSIN COOPERATIVE ADDS A SECOND TRAIN LOADING SITE



Landmark Services Cooperative
Cottage Grove, WI • 608-819-3120

Founded: 1933
Storage capacity: 25 million bushels at 10 locations
Annual volume: 25.6 million bushels
Annual revenues: \$500 million+
Number of members: 15,000
Number of employees: 336
Crops handled: Corn, soybeans, soft red winter wheat, oats
Services: Grain handling and merchandising, feed, agronomy, energy, transportation, ag retail

Key personnel at Fall River:

- Doug Cropp – senior vice president, grain
- D. Fred Johnson, grain operations manager
- Meghan Neuman, location manager
- Josh Grunnet, merchandiser
- Sadie Fischer, grain originator

Supplier List

Aeration fans... AIRLANCO, Brock Grain Systems
Aeration system AIRLANCO
Bearing sensors CMC Industrial Electronics
Bin sweep..... Springland Mfg.
Bucket elevators..... Schlagel Inc.
Bulk weigh scale C & A Scales
Catwalk..... LeMar Industries Corp.
Cleaners Intersystems
Contractor/millwright.. McCormick Construction Co.
Control system..... Knobelndorff Electric
Conveyors (belt)..... Hi Roller Conveyors
Conveyors (drag) Schlagel Inc.
Distributor..... Schlagel Inc.
Dust collection system S-M Enterprises Inc.
Dust filters..... CAMCORP
Electrical contractor... Knobelndorff



4.6-million-bushel rail terminal at Fall River, WI includes slipform concrete and steel upright storage and two temporary storage piles. Photos by Ed Zdrojewski.

The cooperative needed more storage space. The members needed faster dumping capacity during harvest. And both needed a second place to deliver grain for loading onto shuttle trains.

All of these factors led Landmark Services Cooperative to build a new \$30 million rail-loading terminal in 2013-14 in Fall River, WI (608-819-3475), about 25 miles northeast of Madison, WI, in the northern part of the cooperative's territory.

"The site has access to major highways (State Highway 16 and U.S. Highway 151),



Key personnel from left: Meghan Neuman, location manager; Doug Cropp, senior vice president-grain; and Fred Johnson, grain operations manager.

Electric Elevator buckets Maxi-Lift Inc.
Engineering/civil..... Civil Design Inc.
Engineering/structural..... VAA LLC
Fall protection Fall Protection Systems Corp.
Grain dryer Zimmerman Grain Dryers
Manlift..... Schumacher Elevator Co.
Motion sensors CMC Industrial Electronics
Railroad contractor..... Volkman

Railroad Builders
Roof system Kooiker Roofing
Samplers Gamet Mfg. Inc.
Steel storage... Brock Grain Systems
Steel tank erection ... Cross Country Construction
Tower support system LeMar Industries Corp.
Truck probe..... Gamet Mfg. Inc.
Truck scale automation CompuWeigh Corp.
Truck scales..... B-TEK Scales LLC

rail (Canadian Pacific), and it's central to our northern elevators," says Fred Johnson, who has been with Landmark since 2004, first as rail terminal manager in Evansville, WI and now as division operations manager. "It's also a long distance from our original rail terminal in Evansville (about 55 miles away)."

The new 4.65-million-bushel elevator, which has been in operation since August 2014, is a blend of slipform concrete, steel, and temporary storage. To build this facility, Landmark Services selected McCormick Construction Co., Greenfield, MN (877-554-4774).

“We took bids and felt most comfortable with McCormick’s proposal,” Johnson says. “They have a reputation for quality work.”

Among the other major contractors involved with the project:

- VAA, LLC, Plymouth, MN (763-559-9100), performed structural engineering.

- Knobelsdoff Electric, Goodhue, MN (651-923-4970), served as the electrical contractor and supplied the automated control systems.

- Civil Design Inc., Brookings, SD (605-696-3200), did civil engineering work on the loop track.

- Volkmann Railroad Builders, Menomonee Falls, WI (262-252-3377), constructed the facility’s 8,300-foot loop track and performed other rail-related construction work.

Groundbreaking on the 12-month project took place in June 2013. “It went pretty smoothly,” Johnson reports. The



New Zimmerman 10,000-bph tower dryer is powered by natural gas from a new pipeline running out from town.

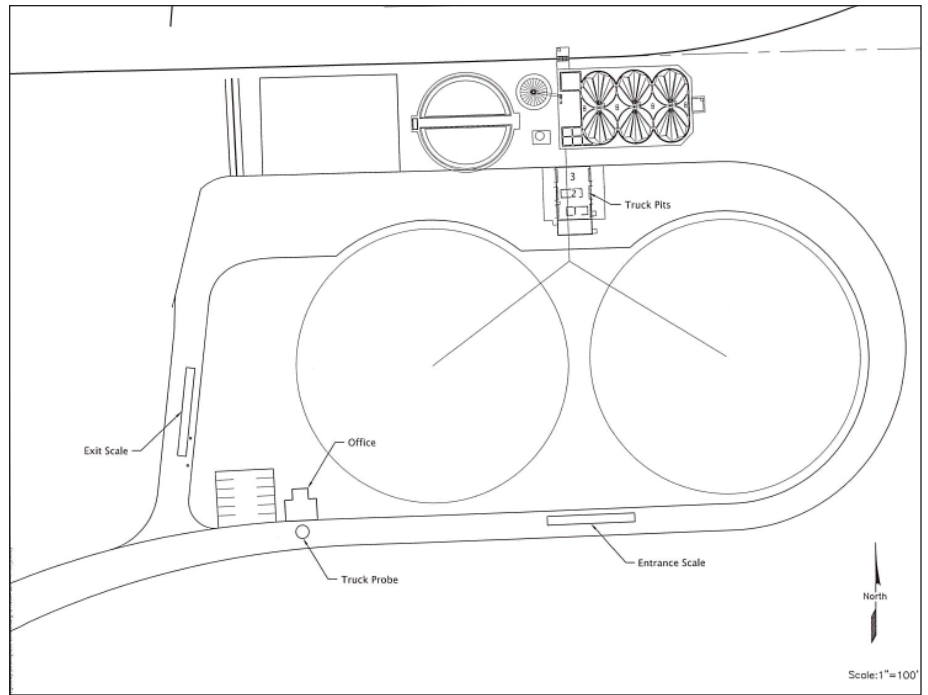


Diagram shows the layout of the Fall River terminal and the counterclockwise route for trucks bringing grain to the facility. Illustration courtesy of Landmark Services Cooperative.

slip was poured in October. We were able to work through a pretty severe winter, especially doing underground tunnel work. It took a lot of planning together.”

Grain Storage

The slipform concrete portion of the elevator consists of six main tanks and four interstices. The main tanks hold 130,000 bushels each standing 135 feet tall and 40 feet in diameter.

These tanks, as well as the steel tank, have no grain temperature cables or level indicators. Location Manager Meghan Neuman, who has been with Landmark

Services for three years, notes that the facility is designed for fast grain turn-around, and none of that grain remains in upright storage very long. She adds that temperature cables can be added later, if the need arises.

However, the concrete tanks are equipped with AIRLANCO AIRAUGER air-assist unloading floors powered by a 40-hp AIRLANCO centrifugal fan on each tank. The fans also can provide standard aeration at 1/10 cfm per bushel. The tanks also have two 2-hp roof exhausters on each one.

The adjacent Brock corrugated steel tank stands 105 feet in diameter, 93-1/2



One of two 1.5-million-bushel temporary storage piles with LeMar center fill tower. This one also has a below-ground Hi Roller 20,000-bph reclaim conveyor.



Incoming grain truck is weighed on an 80-foot B-TEK pit-type scale under the control of a CompuWeigh SmartTruck automation system.

feet tall at the eave, 121-1/2 feet tall at the peak, and holds 750,000 bushels. Neuman says this tank is being used mostly for soybeans.

The size of the tank dictates the use of three outside stiffeners per sheet, she adds. It also is equipped with a 16-inch Springland bin sweep and four Brock 50-hp centrifugal fans supplying 1/10 cfm per bushel of aeration with the assistance of six roof exhausters.

In addition to the upright storage, the facility also has a pair of 1.5-million-bushel LeMar temporary storage rings with center fill towers. These rings are 310 feet in diameter, with four-foot perforated steel sidewalls and asphalt floors. Four 50-hp AIRLANCO centrifugal fans are mounted atop the center fill towers to provide suction to hold the tarps in place.

A pair of 20,000-bph overhead Hi Roller enclosed belt conveyors carry grain out to temporary storage, and one of the two rings has another 20,000-bph Hi Roller belt in a below-ground tunnel for reclaim. The other pile is emptied conventionally with portable augers.

Flow of Grain

Incoming grain trucks are sampled with a Gamet Apollo truck probe adjacent to the facility's two-story office building. The probe controls and grain lab are located on the second floor allowing operators to see into the trucks.

Drivers then move on to an inbound

80-foot B-TEK pit-type scale from United Scales. The scale is under the control of a CompuWeigh SmartTruck automation system, which captures weight and grade data and directs the driver to one of two truck receiving pits. A third pit is for unloading railcars.

After depositing grain, truckers continue on to a B-TEK outbound scale, where they receive their scale tickets via a CompuWeigh automated printer.

The two 1,400-bushel truck receiving pits feed grain into a pair of Schlagel legs, each outfitted with a single row of Maxi-Lift 20x8 Tiger-Tuff buckets mounted on a 22-inch (*brand name*) belt.

The legs deposit grain into an eight-duct Schlagel rotary double distributor. That, in turn, sends grain out to concrete storage via overhead 20,000-bph Schlagel drag conveyors, via 40,000-bph overhead Hi Roller enclosed belt conveyors to steel storage, or to a 10,000-bph Zimmerman tower dryer.

The dryer is powered by natural gas through a 4-1/2-mile pipeline running out from the Village of Fall River. Construction of the pipeline was paid for in part by the cooperative. Grain is carried to and from the dryer via 20,000-bph Schlagel wet and dry legs.

Rail Loading

Volkman constructed the 8,300-foot loop track from 135-lb. heavy-duty rail and standard wood ties designed to hold up to 125 railcars.

To move grain out to those railcars, upright storage tanks empty onto a series of below-ground 60,000-bph Hi Roller enclosed belt conveyors running to a 60,000-bph Schlagel loadout leg. The leg is outfitted with three rows of Maxi-Lift 20x8 Tiger-Tuff buckets on a 64-inch belt.

The operator has the option of running grain through a 40,000-bph Intersystems gravity screener before it goes to an 80,000-bph C&A bulk weigh loadout scale, which is equipped with a Gamet 6800L Series spout-type sampler. The scale is under the control of a Cultura oneWeigh™ automation system. Workers atop railcars during loadout are protected by a Fall Protection Systems trolley system running the length of eight cars. The loadout station is designed to load trains running either direction around the loop track.

Neuman says it takes about six minutes on average for a truck to run through the facility from start to finish.

Ed Zdrojewski, editor