

Airport of the Month - Stephen – D41

By Tom Foster

New seal coat makes a better transition to and from the hangars.



New seal coating makes for much smoother take offs and landings.

New seal coating also means new paint on the taxiway.

George Stephen was a Scottish nobleman. Sir George was knighted by Queen Victoria who later made him a baron. Stephen didn't earn his titles wielding a claymore on the empire's battle fields, but as a leader in Canadian Commerce who helped finance the Great Northern Railroad thus getting him the further honor of having a Minnesota city named after him.

Stephen Municipal Airport is just one of the features that makes the city a gem of the Red River Valley where crops thrive, so a lot of the aviation activity at Stephen is devoted to supporting agriculture. It started with a turf runway that was first paved in the 1970s. Another Scotsman named John Loudon McAdam invented the modern paving technique that eventually led to what's called "back top" and was used to cover the runway and taxiways at the airport. Initially paved on an unsuitable subgrade, it was done again in the 1990s. Curtis Larson was the airport manager then and owned the local operation, appropriately Larson Ag Inc. The city lacked money, so Mr. Larson and five other users financed a successful "redo."

Asphalt Cement Concrete or ACC is the technical term for "blacktop," a petroleum distillate being the agent that binds

the aggregate. Since it's an organic substance, asphalt is subject to oxidation which will eventually cause loose aggregate in pavements. This is not desirable at airports since loose sand and stone aren't good for propellers or turbines.

Winter temperatures in Northwest Minnesota also make ACC brittle and subject to cracking. Runway and taxiway pavements tend to crack at regular intervals which causes a rhythmic "thumping" during take-off and landing.

As with many things in life, acting early usually prevents headaches later. With that in mind, Stephen elected to do a crack repair and seal coating project. Filling the cracks prevents moisture from getting into the base thus preventing additional damage.

Seal coating replaces the asphalt cement in the surface and makes it "black top" again. As with everything on airports, the FAA provides guidance for seal coats in Advisory Circular 150/5370-10H, Chapter 8, Item P-626 "Emulsified Asphalt Slurry Seal Surface Treatment." Skipping the details a "Slurry Seal" is a mixture of asphalt and fine aggregate spread in a thin layer. It hardens quickly and involves no loose sand like some seal coats. Stephen Airport has got nice new pavement markings too.

Runway 17/35 at the Stephen Municipal Airport is 2700 feet long. It has a full parallel taxiway which is good since flight students from the University of North Dakota use the airport frequently. A courtesy car is available if you call ahead, but if you're there on a hundred-dollar hamburger run there are two restaurants half a mile from the parking area.

Larson Ag Inc. got started in the 1970s with a Piper PA-11 and later standardized on more capable aircraft made by Aero Commander then Thrush LLC in Albany, Georgia. These are good machines but there's always room for improvement. Larson Ag owns Supplemental Type certificates (STCs) for an upgraded motor and improved air intake for the piston engine Thrush. They operate one of those and a turbine version.

For the power plant upgrade the original Pratt and Whitney R-1340 is replaced by the R-1340-AN2. Why? The replacement motor has a reduction gear, and the propeller turns at 2/3 the speed of the factory engine. That means a 25% improvement in performance. Probably nobody wants to know how much paperwork Larson generated to get his changes approved.

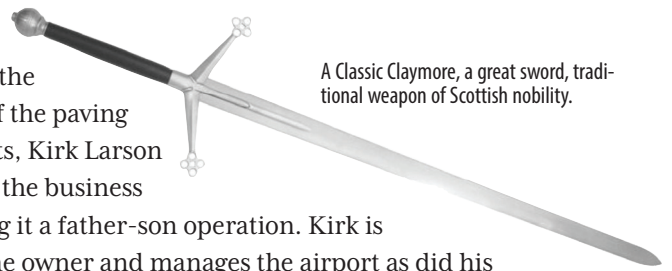


Ken Larson spraying with his Thrush, showing the modified inlet.

About the time of the paving projects, Kirk Larson joined the business making it a father-son operation. Kirk is now the owner and manages the airport as did his father before him. There's not many two generation, 50-plus year old businesses in the world.

Among the displays at "The Hotel Stephen" (a local museum) is one with a tentative aviation connection. On August 29, 1979, just outside Stephen, Marshall County Deputy Sheriff Val Johnson had an encounter with a UFO that got him national fame and a spot on "Good Morning America." Other exhibits include many intriguing artifacts from local history. "The Old Home Town Museum" recreates scenes from the past including a restaurant and soda fountain that hosts the annual Stephen Days Pie and Ice Cream Social in July.

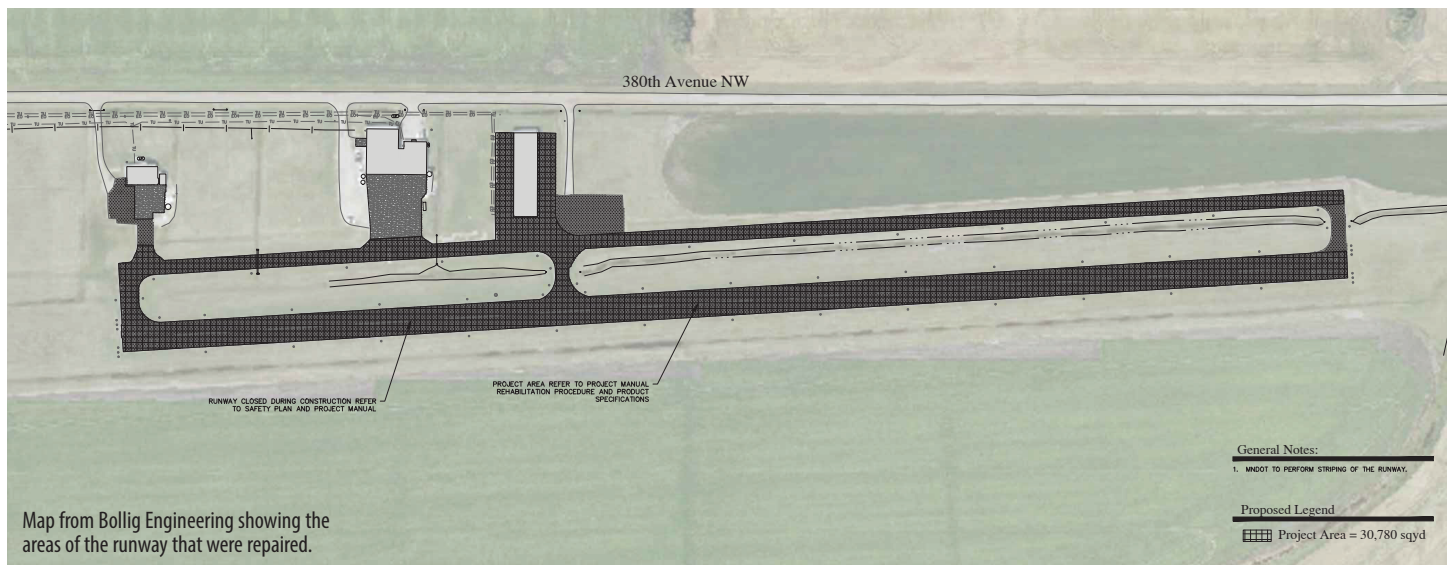
"Claidheamh-mor" is Gallic for "great sword" and a claymore is the traditional weapon of Scottish nobility. That's just a fun fact with no relation to aviation.



A Classic Claymore, a great sword, traditional weapon of Scottish nobility.



Kirk Larson with his modified Thrush.



Map from Bollig Engineering showing the areas of the runway that were repaired.