

AUG. 20

## Ferndale Wind Farm Expansion

*submitted by Sky Generation*

If you were travelling up the Peninsula on August 17th, you might have notice a lot of concrete trucks. We are pouring the foundation for the north turbine. On August 18th, we will pour the middle one.

We started at 7 AM, with perfect weather. The forecast high for the day was 23 C - good working weather, and good curing weather. The concrete cures too fast in hot weather. And rain changes the consistency, so the day was just about as good as it gets. We expect a continuous pour until about 1 PM. The pour needs to be continuous so that it all sets correctly.

Gamsby and Mannerow, consulting engineers are doing sampling on the concrete. We are supplied by two plants, in Keppel, and Sauble Beach, operated by Harold Sutherland Construction. We are using their entire truck fleet. We are testing the concrete from both plants. We gather 4 samples from each plant from the first truck, a middle truck, and a later truck, so a total of 24 samples. These samples will be allowed to harden, and then will be cracked at day 7, 14, 21, and 28, to confirm that the concrete has proper strength. They are also performing a periodic slump test, which confirms the water ratios. Concrete forms from a chemical reaction with the water, and so the mix needs to be perfect.

There is a concrete plasticizer added as each truck pulls up, to ensure the flow through the pump truck is clear. This concrete is high grade, and sets quickly without the plasticizer. The last few trucks won't have plasticizer added, as we will want a faster set on the last finishing loads. We have a pump truck

on standby, just in case we have a break down on the first one. This way we ensure the crew is kept busy, and it ensures a continuous pour even with a breakdown.

The arm of the pump truck is handled by remote control. One person holds the end, and directs the concrete where desired, and the other operates the boom, moving it as required. There are two vibrators in operation, to shake air out of the mix, and to spread the concrete. They look like Moulinex hand held mixers that you might use in the kitchen, but they are quite a bit larger.

Before we began the pour, the rebar was cleaned of dirt. Rust is OK, but dirt or mud can reduce the ability of the concrete to adhere to the rebar. The rebar is continuously swept with wire brush brooms after the concrete has poured through, in order to keep the concrete from clumping up on the rebar web. Earlier this week, the rebar was inspected, and counted, to make sure it complied with the foundation design. Any rebar that was too close to the wooden forms was trimmed to ensure that water wouldn't enter, and rust the rebar from the inside out. The foundation is built to last.

In total, the foundations will use about 35 truck loads of cement apiece. It takes quite a bit of coordination. The trucks have to arrive continuously, but not too fast. The Super P plasticizer has to be added. The samples need to be taken. The concrete needs to be pumped, and vibrated. And toward the end of the day, a rough finish needs to be done. The process includes a hamburger and hotdog barbeque, cold drinks, and coffee for the drivers and workers.



The old Warton District High School is coming down bit by bit. This picture taken a week ago shows all that's left of the old gym.