Grampa's Browns Corner
Daily Blab 4-12-20

Hello, Campers !

I'm still using my old tech MS Word 2003. I've been turning output to .pdf format for ease of transmission. But one reader, Nana's old friend Linda Conte has been unable to open the .pdf files so I'm also posting Word doc.

I'm in conversation with Uncle Chris, cousin Michael, and cousin Davy trying to find a satisfactory vehicle to maintain a blog. Anybody with helpful ideas please chime in. Thanks.

Happy Easter! In spite of the grim situation we are in, we had a fun Skype session with Zoe, Elle, Tyler, Lila, and their folks. Love you all.

I had a productive day out in the woods. I was anxious to move ahead with the completion of Tyler Bridge. At 11:16 I sent an email with the subject "Yee Hah", which was my feeling as I drove the tractor up the north ramp and onto the bridge deck.

As you can see, thee was not yet a ramp on the south side. But I could drive back and forth across the bridge with buckets of dirt to build a ramp.

I had come up with a good idea (4:00 AM brainstorm) for a south abutment of two pressure treated 2x6 boards which lean against the girders and retain the dirt. No regrets about the north abutment of concrete blocks. I needed to find a place to use them anyway. So here they are.

By 2:00 PM I had moved enough dirt to be able to drive off the south end and complete the ramp.

Very exciting to be driving around in the woods I had never before been able to get to. I headed off through the brush with the mower deck churning, cutting down thorny vines and small trees. I was able to quickly clear a path to the vicinity of the southeast corner where the lookout tower will go. Then back to photograph the south ramp.

While driving through the woods mowing down Smilax vines I was thinking of Elle who has many times gotten all scratched up by the thorns but she only very quietly mentions she wished it didn't happen. The mower clears a 60" path. (How many feet is that, Campers?)

Here is the view looking toward Tyler Bridge from the deep woods.

Uncle Tim asks: "For consideration in future iterations: what if you attach the deck boards to the top of the lower flange, and thus reduce the height/thickness of the assembly and also have built-in guard rails in the process?"

In recognition of the junior engineers in my readership I'll explain.

Browns Corner University Structures 1.01

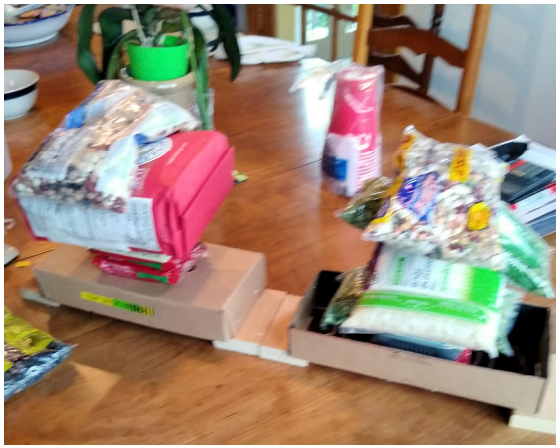
Today's lesson has to do with compression buckling failure of girders in bottom deck bridges. When a bridge is built with *non-compact* sections, particularly *asymmetrical* sections, such as the cold-formed channels in Tyler Bridge, the possibility of failure under load due to lateral buckling of the compression flange must be considered. In other words, the top flanges of the beam might buckle sideways and cause what is known as *catastrophic failure*.

We bring you today this step-by-step demonstration (kids, please try this yourselves at home).

First you need to select appropriate materials, in this case an old shoe box.

Then, bisect it. That means unfold and cut on the red lines to make two identical half boxes.

Fold up and staple the ends. Load with heavy stuff.



Watch the top edge of the girder in the bottom deck bridge for bulging indicating impending failure due to lateral buckling.

Unfortunately our kitchen stuff was not heavy enough. So I brought in a bucket of steel rods to add some serious weight. I reloaded and began adding steel rods until the bottom deck bridge failed.

You can count the rods to be sure I added them equally to both bridges.

Note that the top edge of the girder predictably experienced lateral buckling failure.

In less technical terms, it bent out and made the bridge fall down.

Please contect Dr. Toughlove to sign up for future engineering courses at Browns Corner University.

That's it for today. The heavy downpour has stopped and I can get back to work. Love you! - *TOG*