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Subject: Facilities Update Feb 8, 2012

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Team:

Well, today has certainly been "electrifying", in more ways than one!

Wake County Environmental representatives came out to Bonsal today to for their third review of our soil. Earlier visits had helped them to pinpoint the best potential percable soil locations, and this morning Billy Brooks and I cleared out a lot of the underbrush from the best sites in order to allow backhoe access for digging trenches for soil observation. Leon Lucas joined in our conversations, and his background in soils added a lot to the discussion.

The results indicate that we will have the option to install either a modified conventional drain field, or a low pressure drain field. This is an excellent discovery, as the initial tests indicated that a pre-treatment system would be required, which is a rather expensive undertaking.

If we opt for a modified conventional drain field, we will need to add several inches of sandy loam type of soil on top of our existing soil in the drain field. A low pressure system would not require this; however there are other up-front expenses involved with a low pressure system.

Regarding next steps, there are several things that we will need to pursue simultaneously.

1. Long term locations of restrooms, sinks, etc. Our near term plan is to build a large restroom building; however we may wish to add individual "staff" restrooms to future buildings, such as the station, pole barn, etc. Most likely, some of these buildings will be located below the grade of the absorption field. Initial conversations with the County indicate that our best option will be for each building to have its own septic tank; and that all tanks combined drain into dosing tank. The dosing tank would then be pumped up to the absorption field. We may be able to break the project into two parts; the first is where the primary restroom building gravity flows to its own, large septic tank, which then flows directly to the absorption field. The second portion will include the needs of future buildings that flow to the dosing tank, which would then feed up to the absorption field.

2. We need to evaluate the pros and cons of designing our system with our existing volunteer base, and then seeking to have an engineer stamp it, versus hiring an outside engineering firm to design the system. The primary issue here is cost control. The engineer that is assisting us with our buildings has indicated that he may be able to assist with the septic engineering as well.
3. Negotiation needs to take place between us, the County, and the State regarding the design parameters of the absorption field. The primary issue here is the gallons per day per visitor that the field needs to be designed for. Initial conversations have taken place. However we need to drill further down to determine how to best reduce the overall flow requirements. Most likely, we will need to install waterless urinals and automatic flushing mechanism on all toilets.
4. Water supply. We need to have our wells tested for volume and water quality, and we need to understand the volume requirement of the restroom building. My initial thought is that we should have a dual water supply system, with one system for drinking water, and the other system for restroom water. The restroom water system can be tied into an elevated tank that serves multi purposes, including a water supply for steam locomotives, a large volume water supply for fire suppression systems, and a water supply for the sinks, toilets, etc. This elevated tank can provide the storage needed, and a booster pump can provide the pressure. The second water supply system can be a standard pressure tank system. I think that our current wells will handle the volume required, but this needs further exploration.
5. Design of the restroom building. We need to think about the size, number of stalls, how to handle handicap needs, supply storage, cleaning, HVAC, actual location and appearance. Jim is going to send me some photos of a restroom building at another museum that is built to resemble a Pullman car.

Other things happening this week is that I will be meeting with our Surveyor on Friday afternoon to review what may be the final version of the site plan. Also on Friday I will be meeting with the engineer to review the latest drawing of the pole barn. The width has been expanded to 62 feet (from 58') in order to allow more clearance at the bottom and also to allow for internal knee braces to be installed between the top of the poles and the trusses (needed for wind loading).

More to come!

Scott