

Jan Lewandoski
Restoration and Traditional Bldg.
92 Old Pasture Rd.
Greensboro Bend, Vt. 05842

September 10, 2016

To: Aldrich Memorial Association

Re: Robinson Sawmill

I examined the sawmill structure on 9/7/16. The timber frame and other wooden elements appear in very good condition with only a few minor repairs needed. The main concern (excluding the dam) is a drainage problem all along the south eaves wall which has pushed the dry laid stone foundation inwards (to the north) and perhaps undermined it slightly as well. This has resulted in the south wall frame of the mill dropping as much as 4 to 6 inches along its mid 40 ft. section, which is the original 1803 mill. The shed at the dam end is much less sunken on the south, about 2 inches; and the newer shed on the east appears to have been repaired and jacked to near level, even though attached to the crooked old mill, in recent years. The north wall of the mill, alongside the stream, sitting on stone and old concrete, is quite level, and thus the mill has the appearance of rotating towards the south.

An interior bent of 20th century origin, sitting on a massive concrete footing at mid-floor in the basement of the mill is holding the western group of the 10 x 10 main floor joists from dropping as much as the exterior wall. These joists are being cantilevered across this bent and no longer bear on the south main floor sill, but are suspended above it from 1 to 3 inches. These joists are not level however, but are both bending under their own cantilevered weight and dropping, due to some deviation from plumb, of the interior bent. These joists are down about 2 inches to the south while the wall is as much as 6 inches down.

The drainage problem causing the stone wall under the above framing to move inwards appears so severe that it is surprising that the situation is not worse, and suggests that the ground drains pretty well and that water successfully passes through the dry laid stone some of the time. (visiting the mill a second time I found a PVC drainage pipe transverse to the bottom of the south stone wall entering the interior of the mill. This is evidence of a previous attempt at drainage but it is full of dry sediment and not working) It should be mentioned that the landscape of stone walled terraces that comprise the south side of the mill are both beautiful and functional, providing a high level spot to enter the mill and then dropping away to reduce pressure on the south stone walls. Logs primarily entered the mill from the pond on the west, but the very wide 21 ft. opening on the south wall to

the west of the saw blade suggests that logs were rolled in laterally from the ground onto the saw carriage as well.

The solution to this problem involves turning the south wall landscape of the mill into mostly drainage below the surface, although the same grass and stone and profile can be restored on top. This will require excavating the entire south wall (perhaps leaving the west shed area alone to be part of the dam project), picking up and lifting to level the south timber wall of the mill on jacks, cribbing, timbers, I-beams and structural scaffolding, relaying the stone foundation, and installing drainage of both stone and pipes to the outside of and perhaps through the stone wall. A lot of washed stone should be used in this subsurface drainage, not just gravel.

The gear housing structure above the turbine of the mill is based upon two 12 x 16 inch white oak beams cantilevered out of the basement of the mill and extending 9 ft. over the stream. I installed these around 1990 and the cantilever beams are further counterbalanced by tenoning into a 20 ft. long 11" x 11" white oak beam sitting on large stones at the bottom of the south wall. This longitudinal oak beam reads remarkably level, more so than the rest of the mill, which in addition to being out of level to the south, trends slightly downhill to the east. The two cantilever beams are rising slightly upwards to the north, either due to the general settling that may have been occurring on the south, or the persistence of our having installed them that way to avoid the appearance of sag when shrinkage, crushing, or the effect of cantilevered weight over time brought them downward. The white oak appears in excellent condition in spite of close contact with wet stone and concrete.

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9/10/16

Robinson Sawmill

Scope of Work:

1. Excavate the south wall of the mill (except the west shed portion at the dam) in such a way that the base (or footings if there are any) of the laid up stone are exposed. (I believe there is a course of larger wider stone at the bottom of the stone wall at mid mill)
2. Lift the south timber wall of the mill on any or a combination of jacks and cribbing, needle beams of steel or wood, structural scaffolding and cantilever beams, in such a fashion that the south stone wall is no longer bearing weight, and the mill itself has returned to plumb and level. This will probably involve lifting on the main floor sill and hanging the south basement timber wall on come-alongs from the main sill. How this is done is up to the contractor. Straighten the interior bent at the same time. Bring the east shed up with main building.
3. Relay the south stone wall, unmortared, with attention to the flatness of the ledge or large stones at its base. Give it as much width at the base a space allows. Set the timber frame of the mill down on the new stonework at this time before backfilling, and remove the shoring that is in the way.
4. Install drainage along the entire south wall, including the piers at the east shed, and re-establish the grade. This will involve lots of washed stone as well as gravel, perhaps higher and lower drainage pipes, and drainage through the wall coordinated with the stone mason previously. Drainage can run into the bottom interior of the mill. All of these suggestions can be modified by an experienced drainage contractor when he excavates and actually sees what is there.
5. The stone mason will relay the stone walls and terracing along the south wall of the mill, with attention to the positioning of the large white quartz boulder.
6. The timber frame of the mill is in good condition and the south timber wall can be put down on the relaid stonework without repairs. Along the north wall, the feet of the 12 x 12 inch basement posts, where they bear upon the stone and concrete footings along the stream should all be isolated from direct end grain contact with the masonry. 3 of them are, having a piece of lead flashing and a thin stone between their bottoms and the footings. 4 other ones should be jacked slightly and have the same treatment. The first original post atop the

south main floor sill, towards the pond, has considerable rot and insect damage in its bottom few inches, where it is also anchored by a steel bracket, suggesting damage to the tenon or the end of the sill. The floor should be lifted around this post and a new foot or tenon scarfed in as needed. The newish sill under the east shed needs to be reset on the new stone work.

Robinson Sawmill: Cost Estimates

1. **Excavation:** \$6-8000
2. Jacking to level and shoring: \$15-17000
3. Relay the south stone wall and set the timber frame down on it.
 \$18-20000
4. Install drainage and re-establish grade with small stone and earth: \$8-10000
5. Rebuild the exterior stone walls and terracing on the south: \$10-12000
6. Timber frame repairs: \$4-5000