

West Oaks Dock Section Rebuild and Reinforcements – Winter 2015

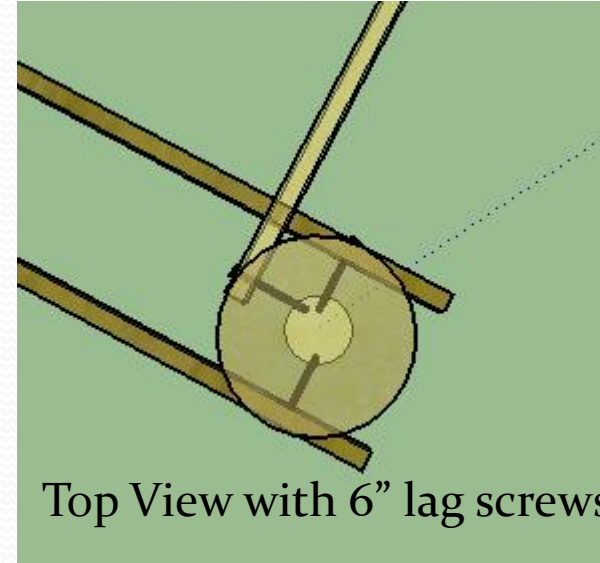
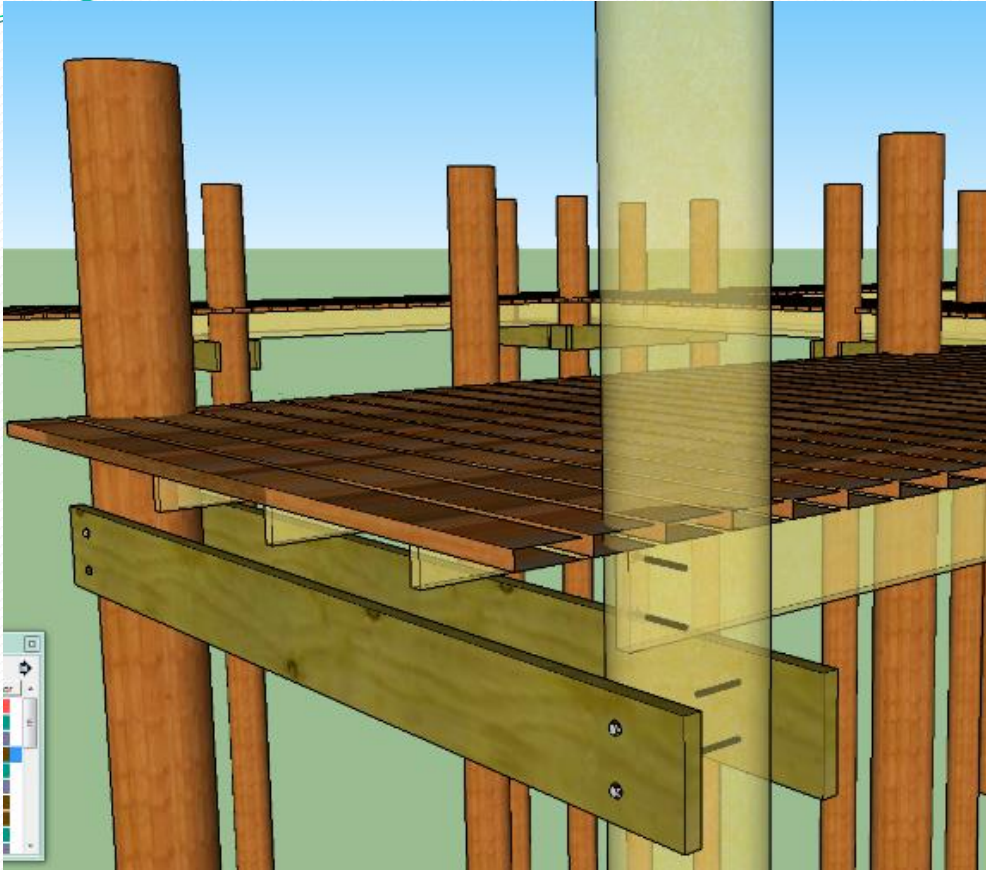
- The dock is prone to ice flow damage whenever a strong SE wind blows up the main body of Bald Eagle lake as the ice is going out.
- Such damage occurred to the SE corner of the dock during ice out of Spring of 2014.
- To help reinforce the dock for future ice outs, a steel structure to the SE corner section was designed and installed.
- There is no guarantee this stiffer design will not sustain future damage either. However, the poles in this section are better tied together with possibilities of better resisting ice flow damage.

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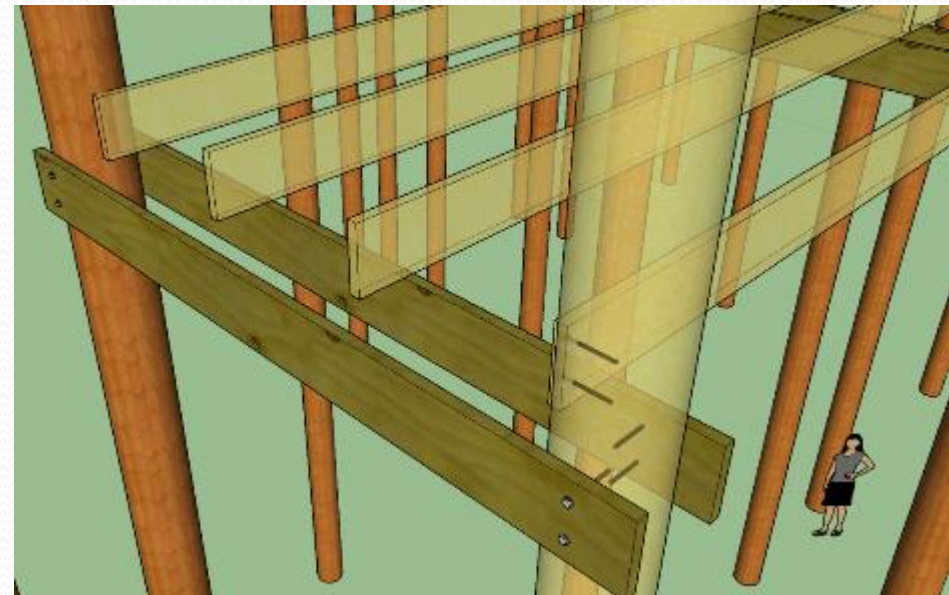
- In addition, the expansion of ice during the winter ratchets the dock towards shore building a cumulative leaning of the docks poles inward.
- De-icers or ice bubblers were purchased and installed to help alleviate this issue by keeping the end of dock ice free.
 - Proper register licensing with DNR, public announcements, and sign requirements were followed to minimize liability concerns.
 - Thin ice signs are monitored on a weekly basis.
 - Signs posted at public boat launch and at dock gate.
 - Lock placed on dock gate to discourage people from accessing dock during winter months.



Original Dock Design



Top View with 6" lag screws



Decking Removed

- Originally only 6"x3/8" lag screws attaching 2x10 joists to poles
- – easy to tear out of poles
- Poles not really tied together

Initial de-icer turned on early January



Poles straightened with 50 ton jack.
Neighborhood volunteers:
Loren Schraeder
Rainer Link
Mark Smith

Initial bubbler turned on early January



Bent poles straightened with 50 ton jack.



1 of 2 bubblers

Perimeter signs as required by DNR placed around bubblers



Posting of open ice in WB Press.
Signs at launch and dock gate.
Lock placed on dock gate.
Thin ice signs need to be inspected
once/week.

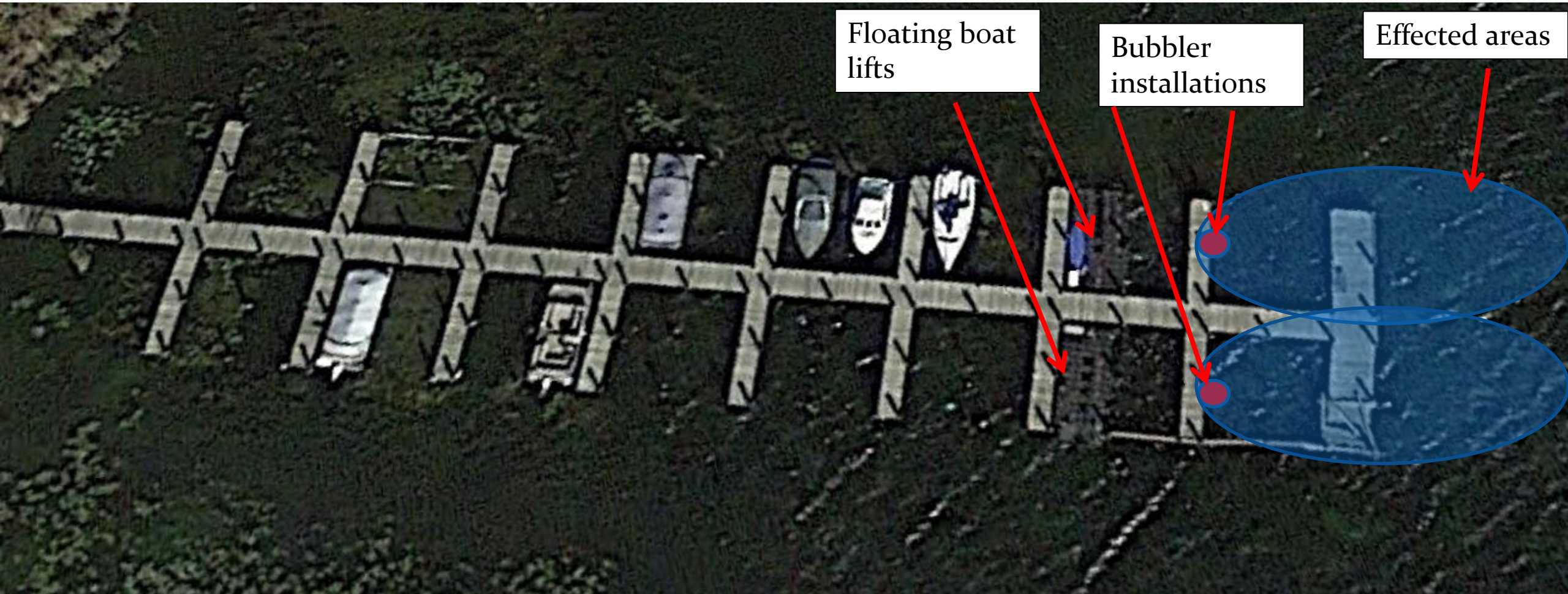
Wooden joists replaced with 6" steel C channels welded to C collars around poles



Finished decking with 2 bubblers – North & South side – 1 day operation



2 Bubblers – pointed outward



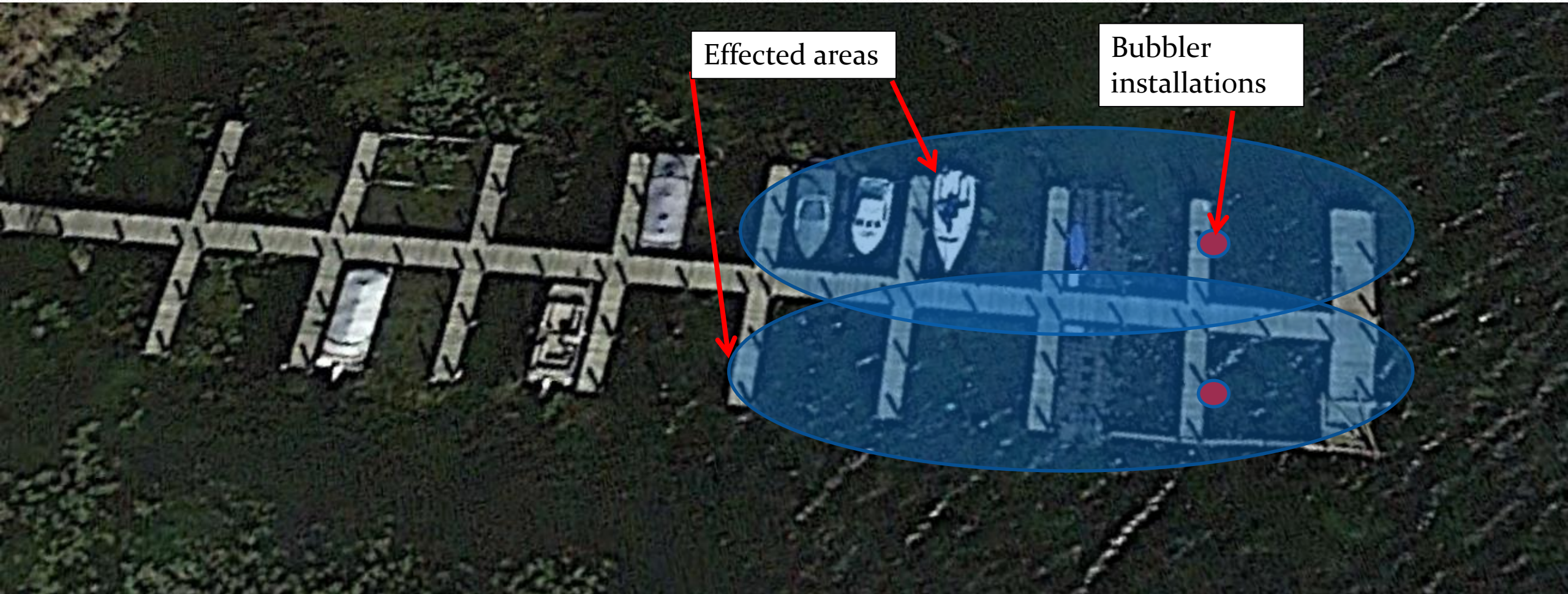
2 weeks operation – pointed outward



2 Weeks operation point outward



2 Bubblers – pointed inward – expected results



Items to consider

- Bubblers are effective at opening ice. Should we try to keep as much dock open water as possible or place bubblers on timers to save electricity?
 - Estimated costs of \$120-150/month to run both bubblers 24/7.
 - Above costs small compared to costs of repair.
 - Propose leaving on full-time to get first month utility actual costs.
- Asked Taylor Lucas to get quotes on fabricating dock pole brackets for:
 - 6 brackets for completion of North dock section next winter
 - 6 modified brackets to support current 6x6 horizontal beams – allow for removal in summer months.
 - Estimate costs around \$2400. May be good to do now while we have fabricator.
 - Total costs incurred to date - \$19,010 dock rebuild & repair, \$3780 – purchase & installation of 2 bubblers
- Will be important next year to avoid ice build-up (ratcheting) around existing steel structure early in season also.
 - Floating thin ice signs placed around area in late Fall would allow us to turn on bubblers early to prevent any ice formation at dock end.
- Others will need to be involved in thin ice sign monitoring and logging of data in Rainer's app as required by DNR.