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DEC 26 2023
CONSERVATION

File # 300-1181

Cantilevered dock related information as requested for 62 Mt Dan Road on Big Alum Lake

A. The only regulations regarding dock sizes are provided by the Chapter 91 Simplified license and they have a maximum square footage of 600 sq. ft. at 256 sq.ft. our proposed dock square footage comes in at only 42% of possible square footage available for an inland waterways dock.

B. Dock load performance Information:

Dock counterweight	56,889.00 lbs
Steel structure past fulcrum point	2,600.00 lbs
Composite decking past fulcrum point	1,024.00 lbs
Wood substructure past fulcrum point	960.00 lbs.

Combined weight past fulcrum point = 4,584.00 lbs

Supporting total weight beyond fulcrum point = 18,336.00 lbs

Average human weight = 180 lbs.

Typical human in a tightly packed crowd consumes 4.5 sq.feet

At proposed square footage the dock can only provide for 56 people far under the rating Capacity which would accommodate 101.86 people.

This calculation does not account for the fact that the counterweight will gain even more Leverage due to friction on sides being buried and additional weight on top.

310 Mass Reg. 10.54 (naturally occurring banks and beaches)

The proposed dock is not located where there is a naturally occurring bank or beach

The man made wall that creates the water line will not be affected by the proposed dock Construction below the waterline therefore existing water line / shoreline will not be affected.

As requested by conservation members at the second walk through, the dock will be shifted 4' To allow existing wall and boulder to remain and not affect the natural shoreline.



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310 Mass Reg. 10.56 (land under water bodies and waterways / under any creek, river, stream, pond or lake)

A. Shading Notes:

The dock deck will have $\frac{1}{4}$ spacing between boards allowing light to penetrate.
The dock space above the water will also allow light to penetrate.
There is no vegetation under the dock that any shading would affect.
Cantilevered docks do provide access to light where floating docks do not.
Northern states have far less impact caused by shade than southern states

B. Under water land notes:

The construction of a cantilevered dock has no affect to land under water with constructed items such as piers, posts, tubes as the entire structure is above water.
The cantilevered dock eliminates seasonal structures in the water which require disturbance to the lake bed at a minimum of twice a year more as adjustments are made to them through out the year.

C. For the above noted reasons, we feel we meet or exceed all performance standards for both regulations.

D. Also as noted on plans, all surface area behind the existing walls on the shore will be returned to its current conditions