

Barton Pond Woody Structure Application to EGLE

10/02/22

Edited by EGLE
10/10/22 - JB

Detailed View of Proposed Sites



Along the outer bend of the river, erosion of the bank continues

Woody structures have been shown to reduce the erosion and fill along pond and river banks

Woody structures also will create new microenvironments for birds, fish and other animals

Barton Hills Maintenance Corporation is proposing to test three types of wood structure in the three sites marked along the river bank it owns.

If the experiment is not shown to be effective, then BHMC reserves the right to remove these structures in the future.

Three types of woody structures

Example designs – Multiple Fish Stick series



The proposed sites will support piloting the three types of woody structures recommended by environmental experts at EGLE & DNR

- Turtle Logs
- Single Fish Sticks
- Multiple Fish Sticks

Example designs – Single Fish Stick series



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Example designs – Turtle Log series



A

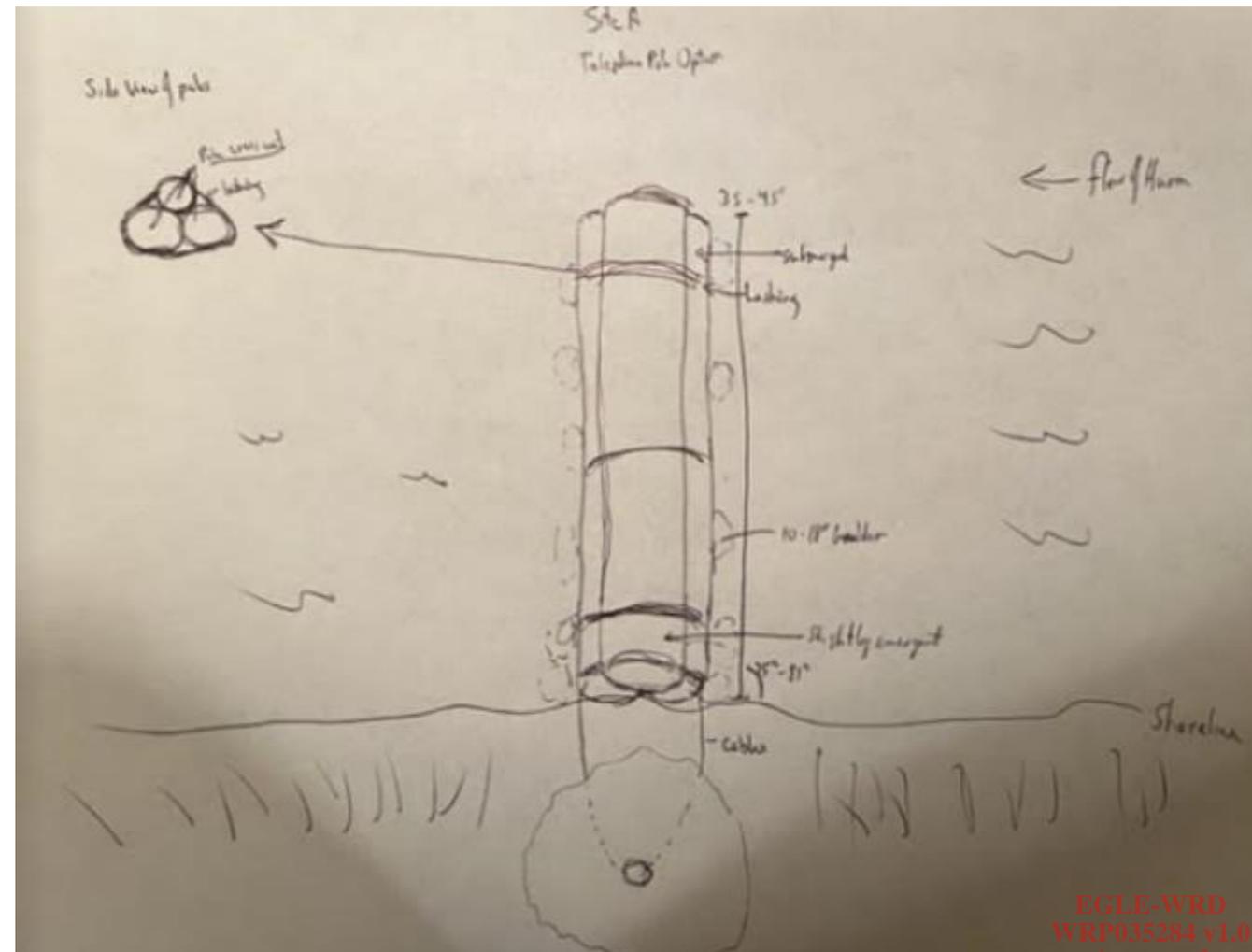
Site A – Turtle Logs

- Site A has no overlying trees, so we propose using untreated logs/poles without the crown. The structure is cabled to the shoreline shrubs and trees pictured.
- We propose using logs without crowns or untreated/unprocessed poles approximately 50 feet long and perpendicular to the shoreline
- The structure will be stacked like a pyramid to ensure that the woody structure(s) is exposed above the waterline in one to three structures that would be separated by 10 – 30 feet
- The woody structure(s) also will be anchored by boulders to ensure that the structure does not sink below the waterline and to reduce scouring beneath the structure(s)

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Site A. One to three woody structures in parallel

- This structure(s) would extend the natural point about 180 feet from the dock.
- To reach 50 to 70 feet out into the water, the uncrowned logs/poles may need to be extended with an additional set of lashed logs/poles (depends on the lengths we are able to have donated).
- A felled tree could be dragged to the site rather than the use of poles (see other site proposals) if available and transportable.
- Felled trees without crowns are designed for transport, strapping and maneuverability so are a good alternative where no trees are available as at Site A. They are worth a test.
- Also if BHMC do not like the results of the pilot, logs/poles will be removable and trees likely not
- The wood poles will be held in place with cables to the shore and with boulders on the pond bottom.

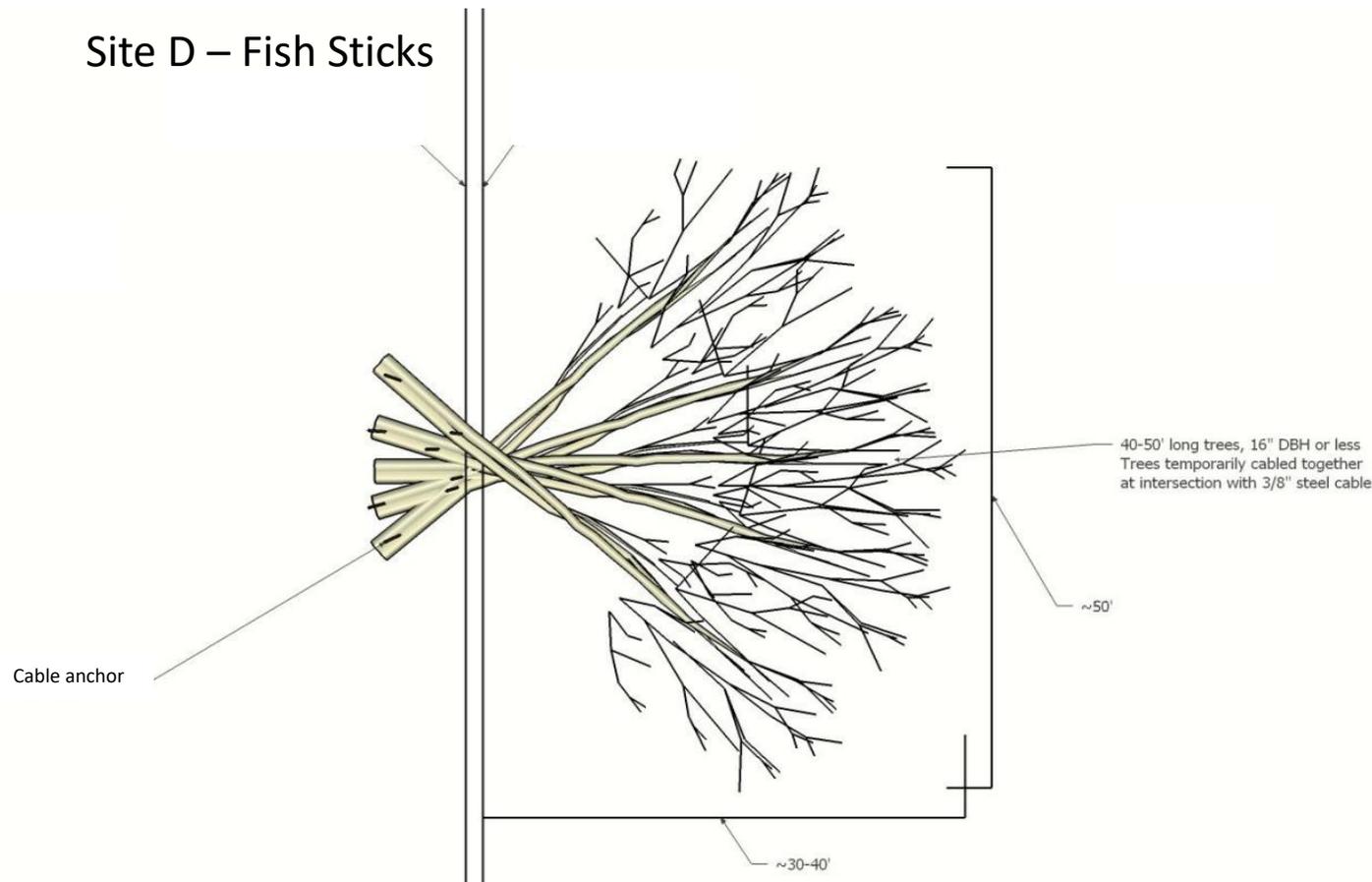


Site A – Cross Section

- The pyramid may have to be stacked two or three high to be above the waterline in the soft sediment. (up to three feet high).
- Cables to the shore and stones (4 – 8 inch) and boulders (8 – 20 inch) will be placed along the base to ensure the woody structures remain in place in the current of the river.



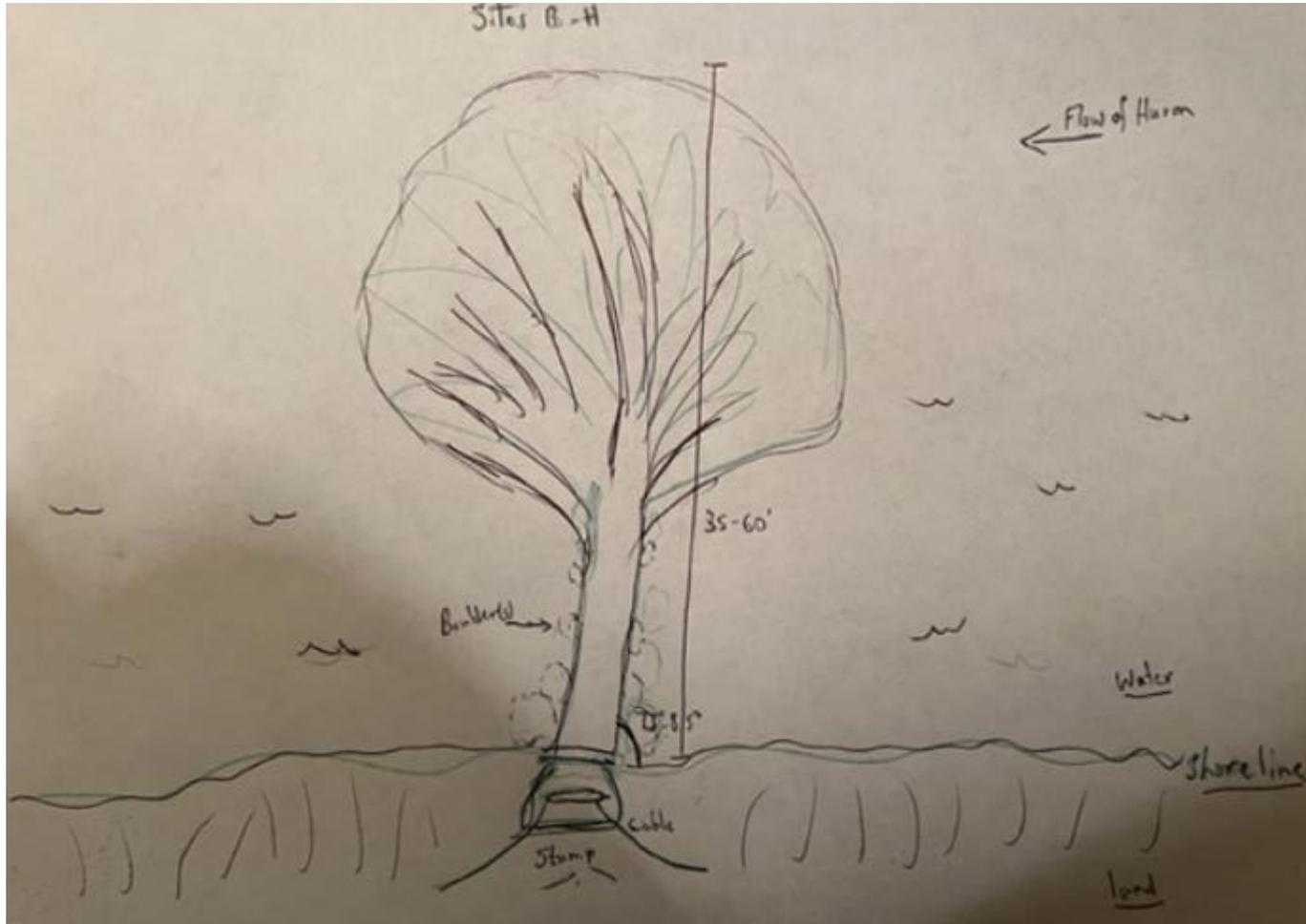
Fish Stick Pilots: Sites B & D can test a single and multiple fish-stick structure respectively.



- Fish-stick structures overall the trees in a fan shape along the shoreline
- The trees will be lashed at the crossing with cable and anchored to the stumps on the shore after felling.
- Fish-sticks may require winches to position the trees and chain saw skills to peg the trees at overlaps that may exceed BHMC skills.

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Site B: Single Fish Stick



- There is a dead tree on the pond along the BHMC property that could provide a woody structure if felled.
- The tree can be cut with a hinge cut and can also be anchored to the stumps of the felled trees
- This will allow us to pilot woody structures without the capital expense of shipping trees into the area.
- The tree will be almost perpendicular to the shoreline but bet pointes slightly into the current (by 5 – 15 degrees)
- The felled tree will be replaced by a native tree recommended by BHMC naturalist and caretaker, Mr. Apple.

Sites B and D Cross Section



- The trees are between 35 and 65 feet high.
- Sites B and D have multiple trees that can be felled to create a more dense woody structure and fish stick patterns or 3 woody structures in close succession up the shoreline
- The bottom is sediment is marl at every site and some boulders will be added to prevent movement and scouring of the current of the lakebed foundation

Site B: Single Fish-Stick - Mostly Dead, 65' Tree



- BHMC plans to remove this tree anyway.
- It is close to the shoreline and would be hinge cut and tethered to its stump and other trees on the shore with cable or chain.
- It is 65 feet high and does not have branches until quite high so we may be able to test habitats further from shore with this tree.
- It may split apart upon hitting the ground in winter, so care would need to be taken (winching) upon felling the tree and several lower branches may need to be trimmed so it stays together at impact.
- The lower branches may be used as part of the fish-stick.

Site D: Pilot Multiple Fish Sticks



- There is a fallen dead tree on the pond that shares its root system with a dying tree along the BHMC property that could provide a multiple fish stick woody structure if felled and jointed with the log on the ground.
- The dying tree can be cut with a hinge cut and also be anchored to the stumps of the felled trees. It will be combined with the fallen tree.
- This will allow us to pilot a multiple fish stick structures without the capital expense of shipping trees into the area or the environmental damage that could be caused by dragging multiple fish sticks to the site.
- The tree will be almost perpendicular to the shoreline but will point slightly into the current (by 5 – 15 degrees)
- The felled tree will be replaced by a native tree recommended by BHMC naturalist and caretaker, Mr. Apple.