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Stream Buffers

(with some draft plans for primary buffer at Willow Brook)

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Watershed Resource Specialist

Stream buffers

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Stream corridor zones, or buffers, along the stream banks consist of deep-rooted, flood-tolerant plants and trees.

The benefits stream buffers

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Streambank stabilization

• Native riparian vegetation has dense, deep, intertwined root systems that physically strengthen soils.

• Riparian root systems remove excess moisture from the soil, making banks more resistant to erosion or slumping.

• Exposed root systems provide roughness that dissipates the water's erosive energy along the banks while the plant stems and leaves provide roughness during flood flows.

Water quality protection

• Vegetated buffers intercept and filter out much of the overland flow of water, nutrients, sediment, and pollutants; accordingly, wider corridors are more effective at protecting water quality and promoting ground-water recharge.

Stream corridor habitat benefits

• Diverse riparian vegetation provides shade, shelter, leafy or woody debris, and other nutrients needed by fish and other aquatic organisms.

• Wide, continuous, vegetated floodplains help dissipate flood flows, provide storage for floodwaters, retain sediment and nutrients, and provide shelter, forage, and migration corridors for wildlife.

Preferred vegetation mix

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"A mix of native trees, shrubs, flowers, ferns, and grasses at varying heights provides a tangled mix of different root structures that help to hold soil to the banks along with all kinds of other benefits to the environment."

http://ncforestservice.gov/publications/BYSRGuide2015.pdf

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SAMPLE BUFFER PLANS

Recommended Species for the Stream Buffer Planting Guide

TOMPKINS COUNTY STREAM BUFFER MANAGEMENT

http://tompkinscountyny.gov/files2/planning/water-resources/SCREENLAYOUTBOOKLET-WEB2.pdf p. 20

STREAM BUFFER PLAN at PLANTING

TOMPKINS COUNTY STREAM CORRIDOR & MANAGEMENT PROGRAM

One Inch = 50 ft.

SETBACK AREA

UPLAND AREA

50 ft. RIPARIAN BUFFER

NEAR STREAM

Black Cherry

20′

Black Cherry

20′

Eastern Redbud

Eastern Redbud

This stream plan represents a 50′ setback from top of stream bank. This is the recommended setback width for intermittent streams and on agricultural properties. Please note: a minimum 100′ setback is recommended for perennial streams. In such cases the spacing and species listed in the Upland area should be replicated for the next 50′. Native grasses should be planted, and not cut, between all trees and shrubs.

Silver Maple

10′

Silver Maple

10′

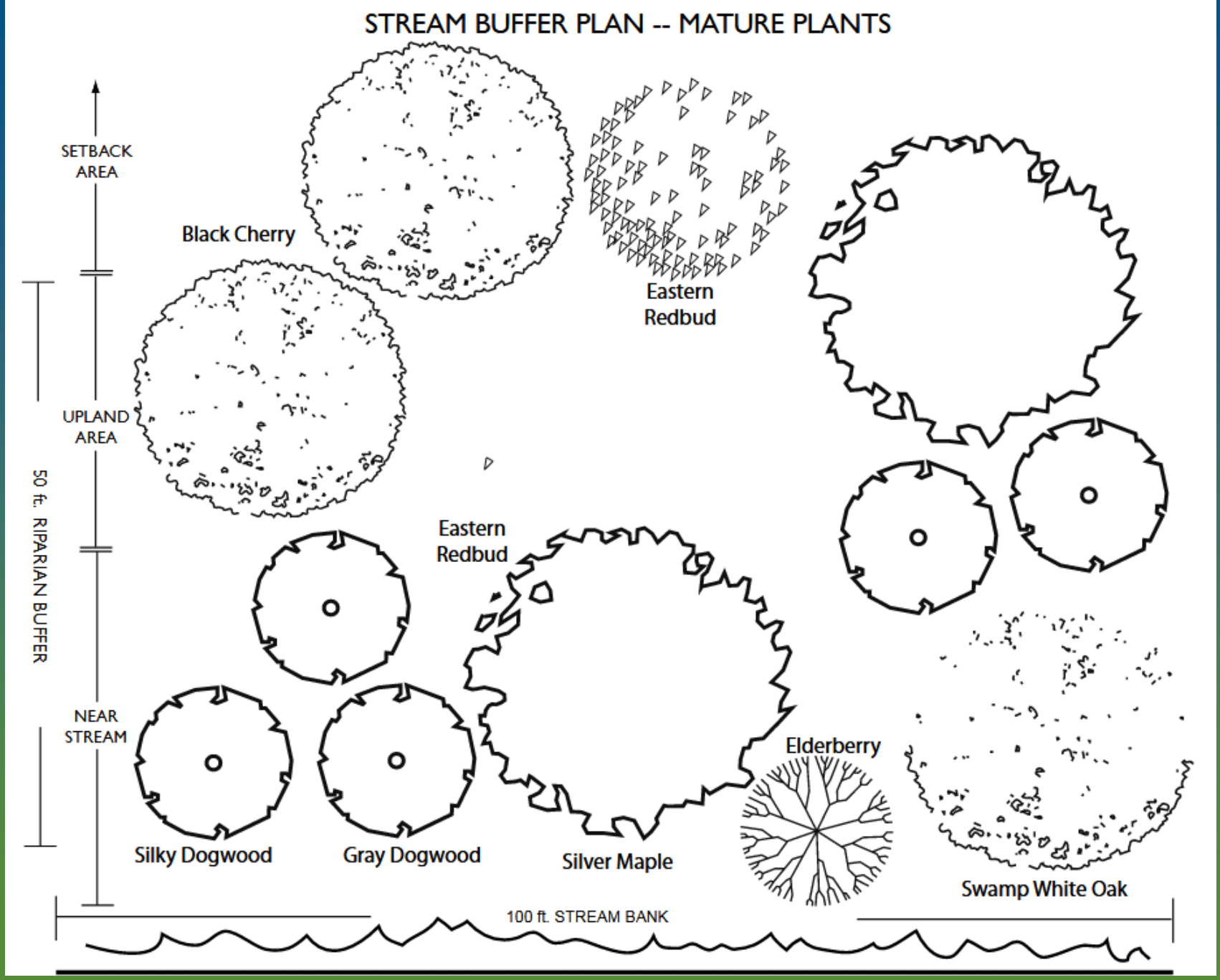
Silky Dogwood

Gray Dogwood

Elderberry

Swamp White Oak

100 ft. STREAM BANK



http://tompkinscountyny.gov/files2/planning/water-resources/SCREENLAYOUTBOOKLET-WEB2.pdf p. 22

Lake and Stream Corridor Owners' Guide for Riparian Buffer Establishment

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Southeast Michigan Resource Conservation & Development Council
Serving Lenawee, Macomb, Monroe, Oakland, St. Clair, Washtenaw & Wayne Counties

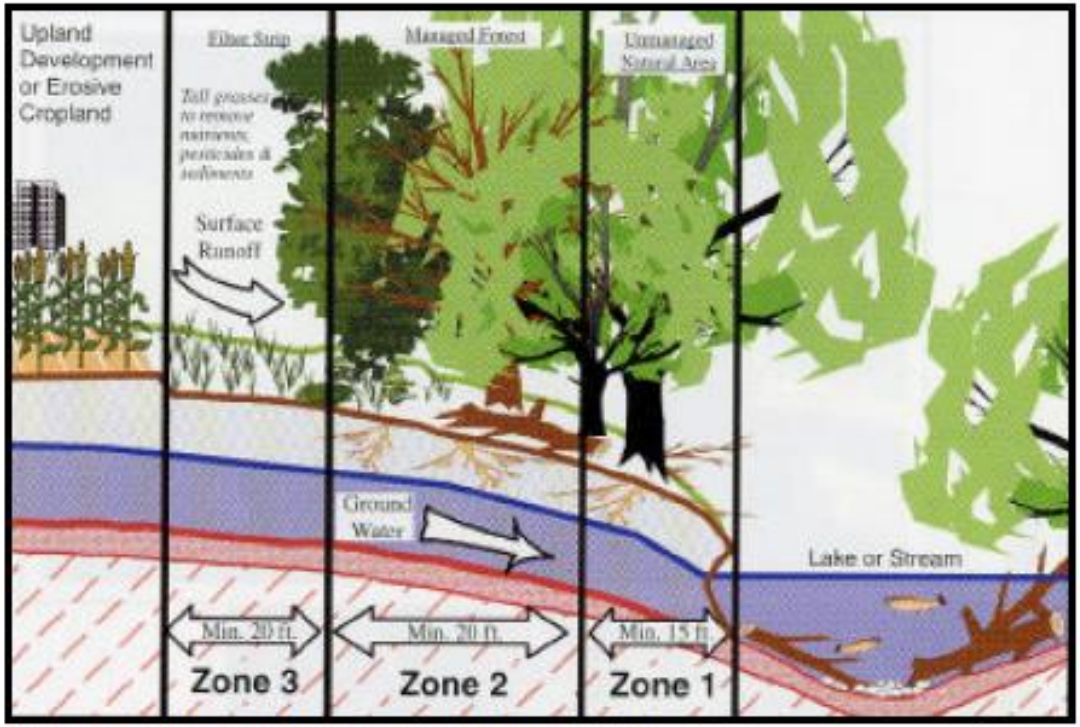

Figure 1: *Riparian Buffer Zones Illustrated.*

https://waterfordmi.gov/DocumentCenter/View/601/Riparian-Buffer-Establishment-PDF

Small-scale Solutions to Eroding Streambanks

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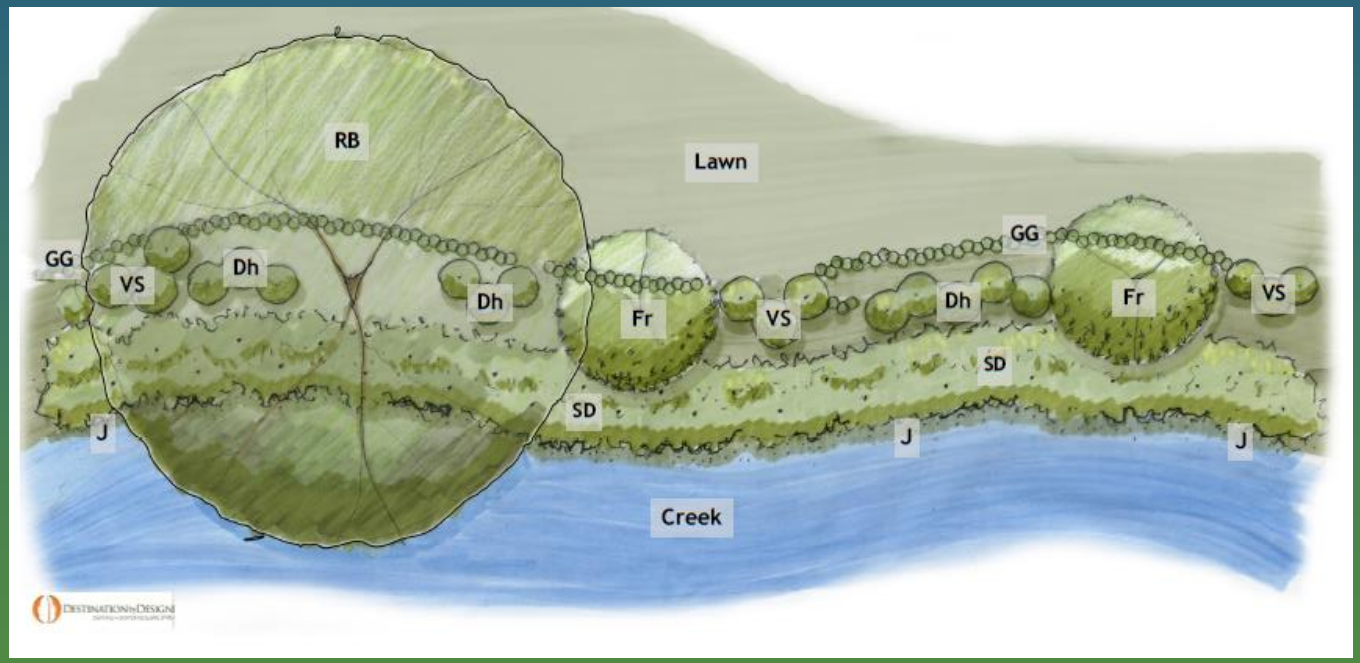
Example Streambank Design 150'long x 20' wide			
Key	**#**	**Plant Species**	**Spacing**
J	75	Rush	(3'x1'; plant every 2')
SD	30	Silky Dogwood	(15'x6'; plant every 10' at water's edge with a second row 3'-4' on bank staggered)
VS	10	Virginia Sweetspire	(6'x6')
Dh	11	Doghobble	(4'x5')
Fr	2	Fringetree	(20'x20')
RB	1	River Birch	(70'x60')
GG	150	Green and Gold	(1'x1.5'; two rows staggered at top of bank every 1.5')
Seed Mix Across Entire Site			
	Plant Species		
	Black-eyed Susan, *Rudbeckia hirta*		
	White Clover, *Trifolium repens*		
	Buckwheat, *Fagopyrum esculentum*		
	Partridge Pea, *Chamaecrista fasciculate*		
	Browntop Millet, *Urochloa ramosa*		



https://www.bae.ncsu.edu/workshops-conferences/wp-content/uploads/sites/3/2017/07/Small-scale-Solutions-to-Eroding-Streambanks.pdf p. 16

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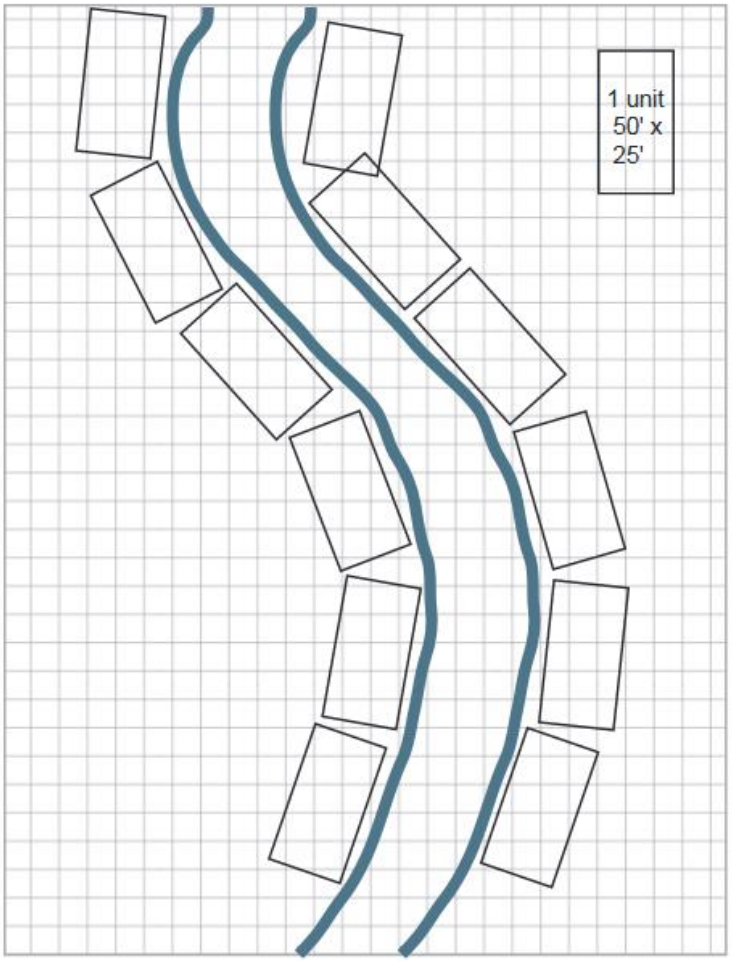
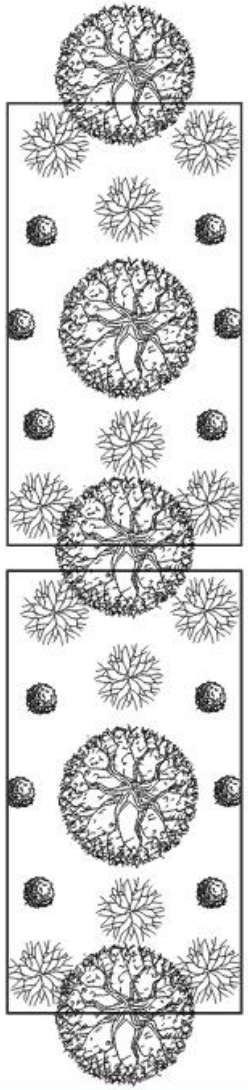
DRAFT BUFFER PLAN

Example:

This buffer will be 300' long and 25' deep, planted on both banks.





A 25' buffer is the minimum depth for a meaningful buffer.
50' is better if you have the room.
100' is the best, especially if your stream floods often.
But...even a single line of trees and vegetation is better than nothing.

Basis for draft buffer plan

https://www.cuyahogaswcd.org/files/resources/woodsforwatersriparianbufferplantingguide.pdf p. 8

Potential scope of buffer and buffer expansion

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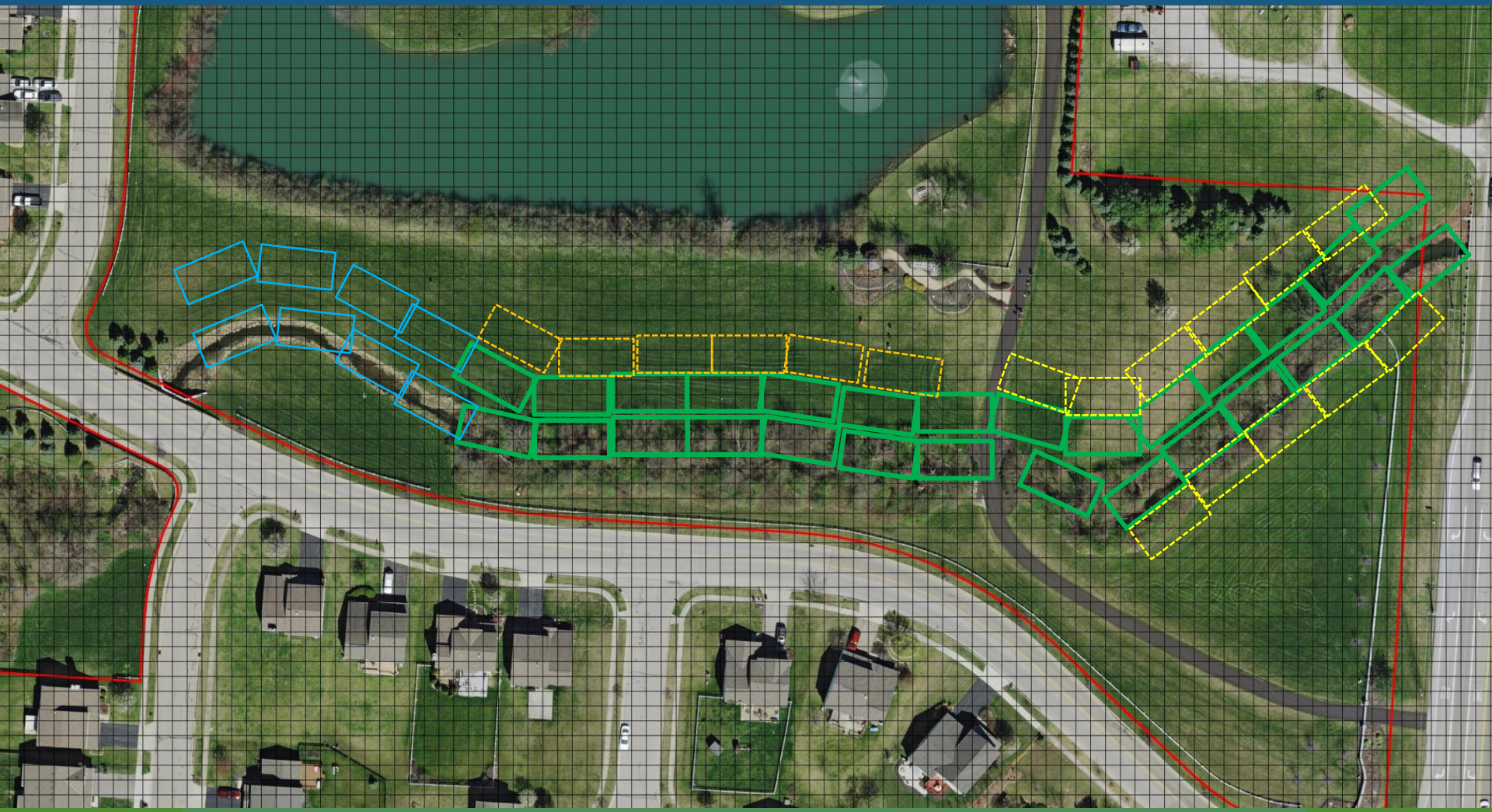

Location of primary buffer with elevations

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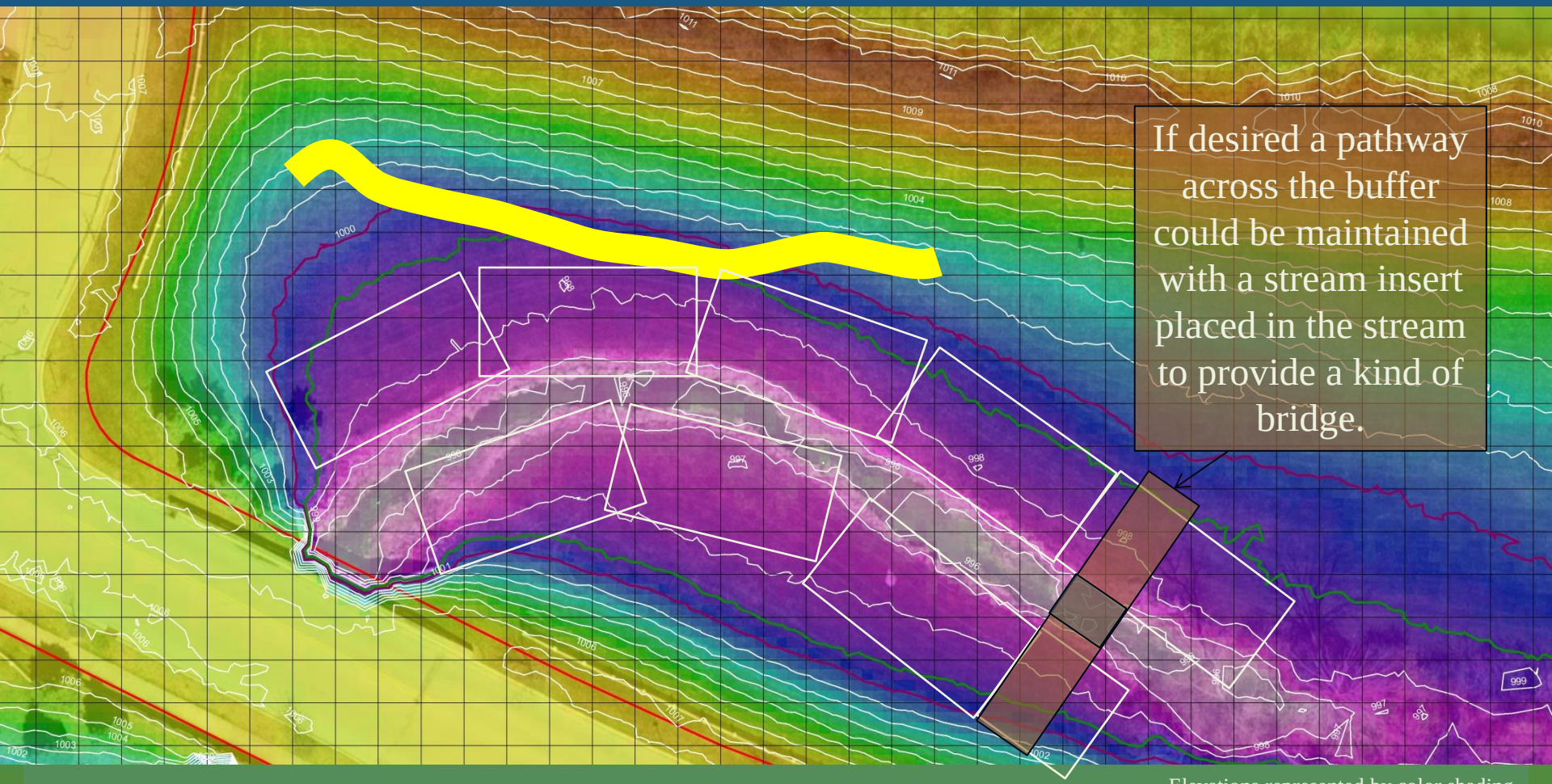

Elevations represented by color shading
Scale: each square 10' X 10'

limit on tree canopy
(bottom edge of berm for pond)

Buffer planting unit
(25' X 50')

Schematic of design

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Potential tree species and locations with canopy

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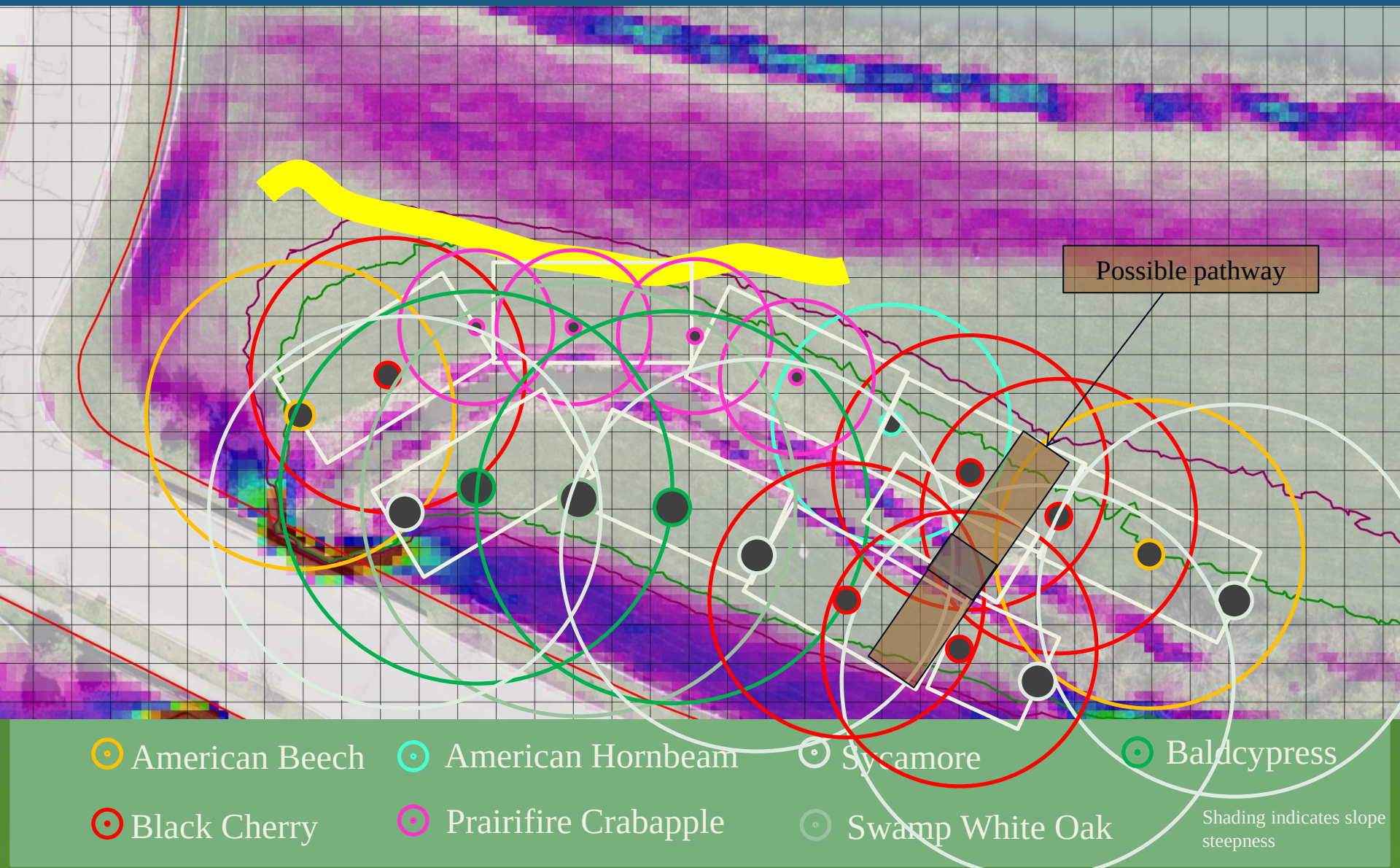

Potential shrub (and tree) species and locations with widths

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