sequestered per acre per year. Because COMET planner does not model carbon sequestration we cannot accurately predict the tons this silvopasture would sequester. However, given the dense windbreaks, multi-layered hedgerows, and thick planting of willows and riparian trees within the silvopasture the overall tree totals and sequestration rate should be high. Carbon sequestration will come from the increased biomass of the trees, deep roots, and increased soil function that will result in greater and greater soil organic matter.

Silvopasture meets all of the 4 soil health principles on multiple levels. The light canopy of trees helps decrease the erosive force of rain while also increasing the total biomass and forage production on each acre. The fallen leaves act as a light mulch each fall to provide organic matter and nutrition for soil biota. The roots of the trees delve deeper into the soil profile than any other agricultural plant, holding soil, increasing mycorrhizal fungi populations and their soil-building properties, increasing the depth of the rhizosphere that helps soil biology thrive, and bringing water and nutrients to the surface where they are accessible to forages and soil life. The roots are always there and so soil life can survive through the winter and jumpstart earlier in the spring as the soil warms. The diversity of trees planted in this silvopasture means there will be a greater diversity of micro and macrobiota as well. From increased bird and pollinator populations to increased microbial diversity. All of this diversity, soil cover, living roots and habitat, and decreased disturbance from the integration of working trees into the farm landscape means increased ecological relationships, diversity and therefore farm resiliency from weather and climate disruptions.

We are adding animals to our farm slowly and with intention, trying to use this to our advantage with regards to establishing trees and shrubs. The more quickly we plant our trees—favoring a single planting rather than a phased approach—the more attainable our goal becomes. We limit the number of years spent establishing the trees and will have the benefits of the windbreak, shade, and nutritional fodder in place for the animals when they arrive rather than spending additional time and resources protecting saplings and creating temporary solutions for the animals' requirements that are otherwise being addressed through this project.

A major issue on our farm is "man-power." There are two of us and we are timing our animal production to coincide with both children entering school full-time. At that point, will manage the daily animal and agriculture production and marketing and will continue to work on the farm on evenings and weekends. We have taken great care in designing our systems to reflect our physical and time limitations. This grant would allow us to hire support for planting these trees in a single planting so that we spend 1-2 years of focused watering,weed suppression, and tree protection maintenance in advance of introducing animals rather than this process taking many years.

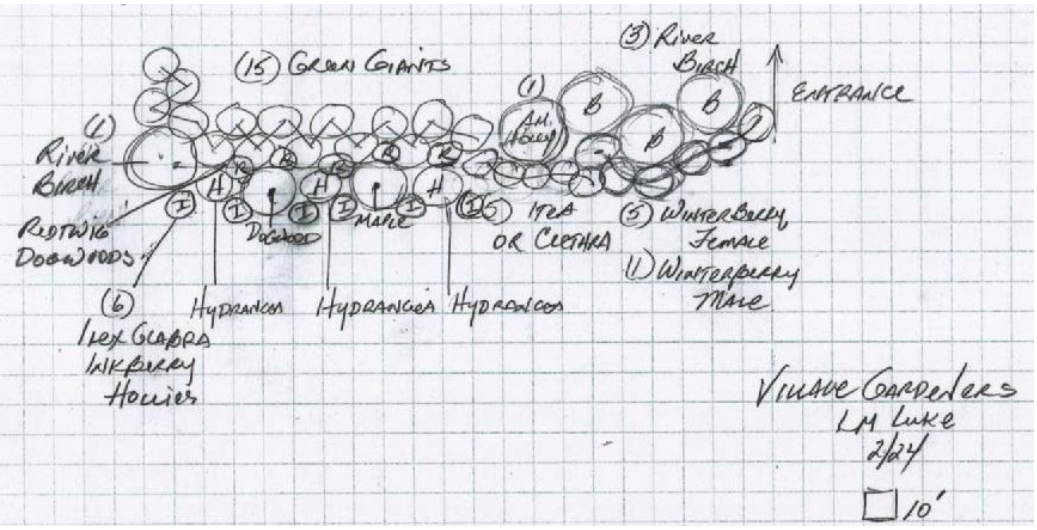
We have worked with multiple professionals in order to ensure that our plans will both realistically meet our objectives and implement established best practices. Our hope is that through thorough, advanced planning and execution we can avoid costly mistakes and reduce the number of inevitable lessons learned. We are working with an Agroforestry Consultant with Trees for Graziers, to design and establish the silvopastures and designed the windbreak with a nursery that specializes in native plantings. Loggy's Permaculture helped us create the initial concept for

# Proposal

| # | Item | Description | Qty | Unit Cost | Cost |
|---|---|---|---|---|---|
| 1 | | **Planning** | 20 | **$100.00** | **$2,000.00** |
| 2 | | **6' shelters 530+** | 373 | **$10.00** | **$3,730.00** |
| 2 | | **4' shelters** | 117 | **$4.00** | **$468.00** |
| 3 | | **Silvo Planting w/shelter 150-539** | 836 | **$20.00** | **$16,720.00** |
| 4 | | **Tree Stock**<br>Black Locust Seedlings | 87 | **$7.00** | **$609.00** |
| 4 | | **Tree Stock**<br>Grafted Honeylocust | 87 | **$30.00** | **$2,610.00** |
| 4 | | **Tree Stock**<br>Improved Mulberry, Persimmon, Hazel, Chestnut | 75 | **$15.00** | **$1,125.00** |
| 4 | | **Tree Stock**<br>Hedgerow Shrubs | 100 | **$10.00** | **$1,000.00** |
| 4 | | **Tree Stock**<br>Hedgerow Trees | 50 | **$15.00** | **$750.00** |
| 4 | | **Tree Stock**<br>Riparian Shrubs | 91 | **$10.00** | **$910.00** |
| 6 | | **Spiral tree guards**<br>the spiral guards will be cut up into 9" lengths, so the 1" diameter comes out to $0.405 a piece. 3ft= $3 | 836 | **$0.60** | **$501.60** |
| 8 | | **Aftercare per tree/event (polywire)** | 836 | **$2.00** | **$1,672.00** |
| 9 | | **Live stakes 3'**<br>Willow | 346 | **$3.00** | **$1,038.00** |
| 10 | | **Polywire**<br>per foot | 10552 | **$0.03** | **$263.80** |
| 12 | | **Flagging/Layout** | 836 | **$2.25** | **$1,881.00** |
| 13 | | **Vole deterrent application** | 836 | **$0.25** | **$209.00** |
| 14 | | **Mulch** | 836 | **$5.00** | **$4,180.00** |
| 15 | | **Mulch Flat Rate Setup** | 1 | **$300.00** | **$300.00** |

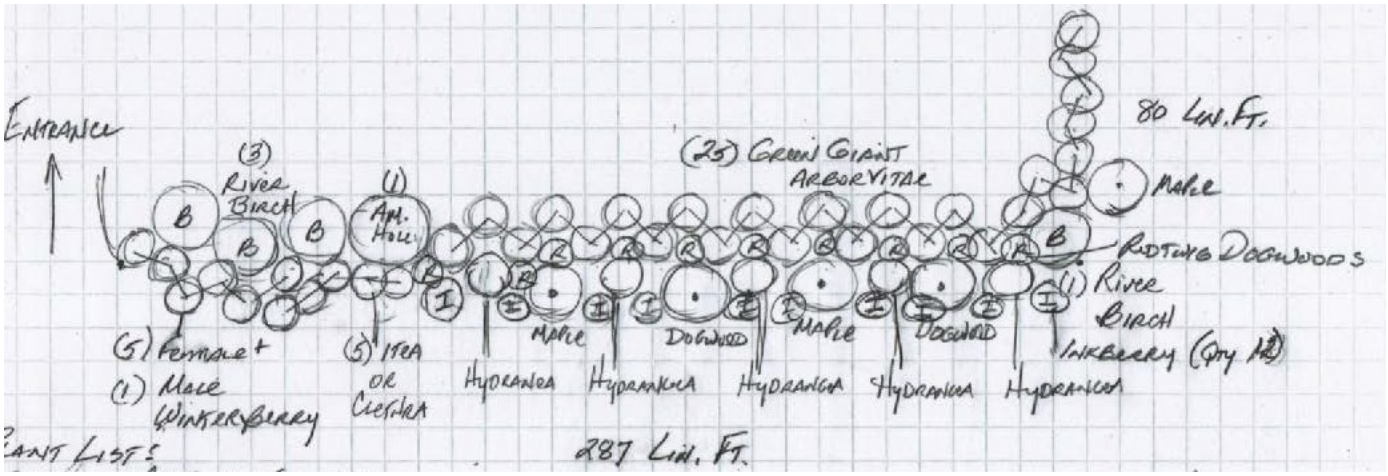
## Detail of Native Plant and Conifer Windbreak along Woodbine Road

**Left of Entrance:**




**Prevailing Winds**

**Right of Entrance:**




**Plants and Quantities**

(40) Arborvitae, Green Giant
(8) River Birch
(11) Winterberry Holly
(10) Itea Virginica or Dwarf Clethra
(2) American Holly
(8) Oakleaf Hydrangea
(4) Paperbark Maple
(3) Dogwood Tree
(15) Red-twig Dogwood
(18) Inkberry Holly

*The length of the windbreak will be filled in with native wildflowers and flowering ground-cover provided through splits and seeds collected from our existing wildflower meadows.