Final Report:

STU Food Forest

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ENVS-3123: Regenerative Food Systems

St. Thomas University

Dr. Andrew Mathis

April 9, 2025

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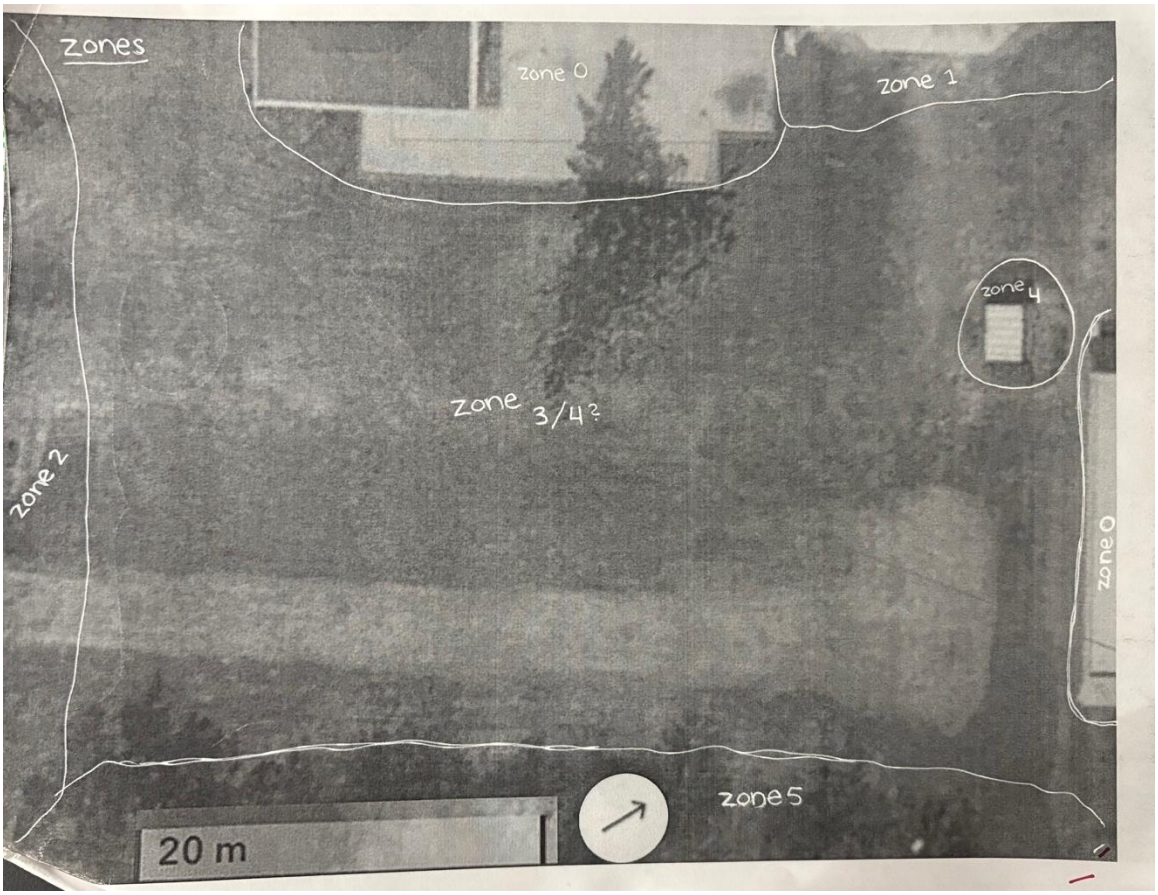
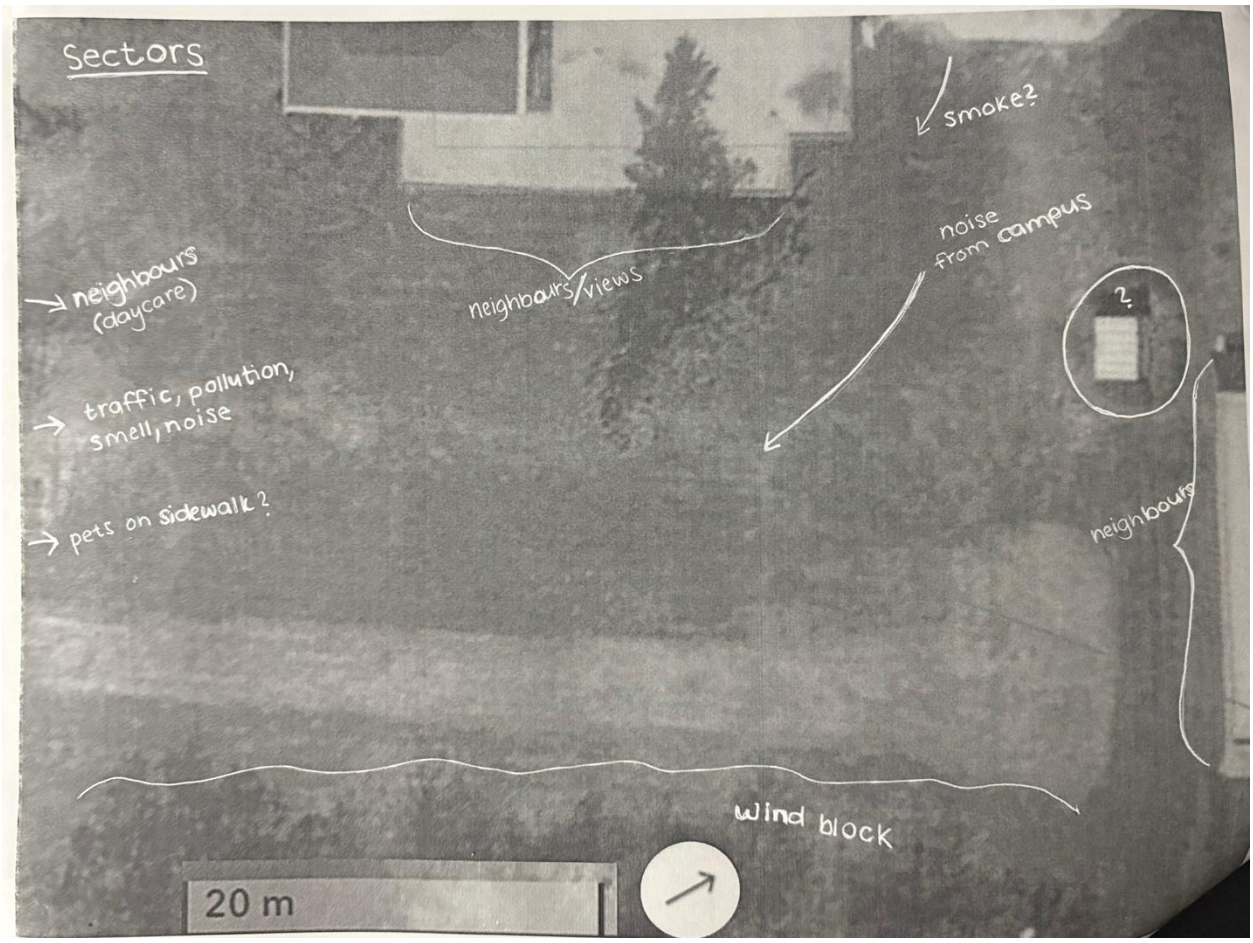
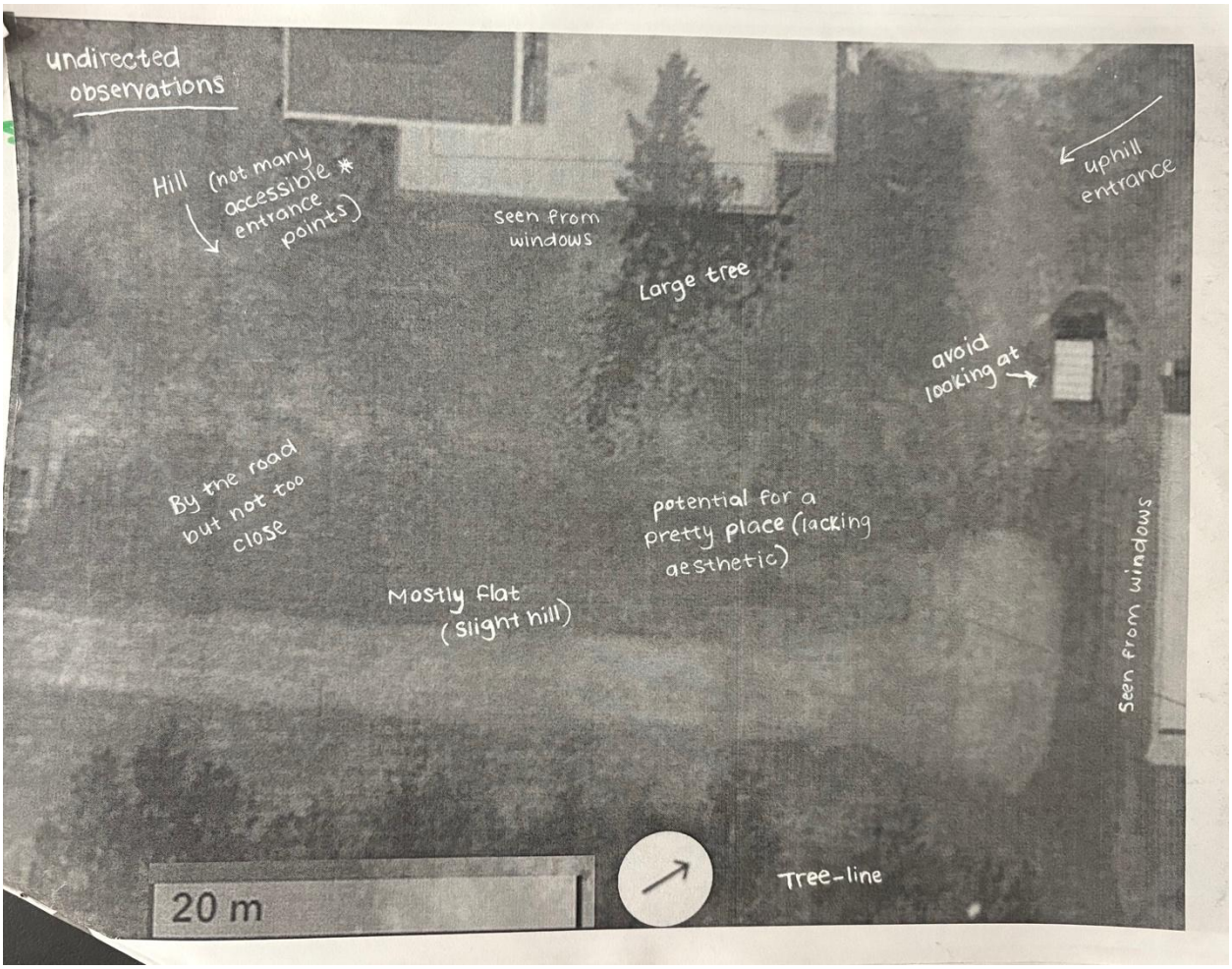
Vision

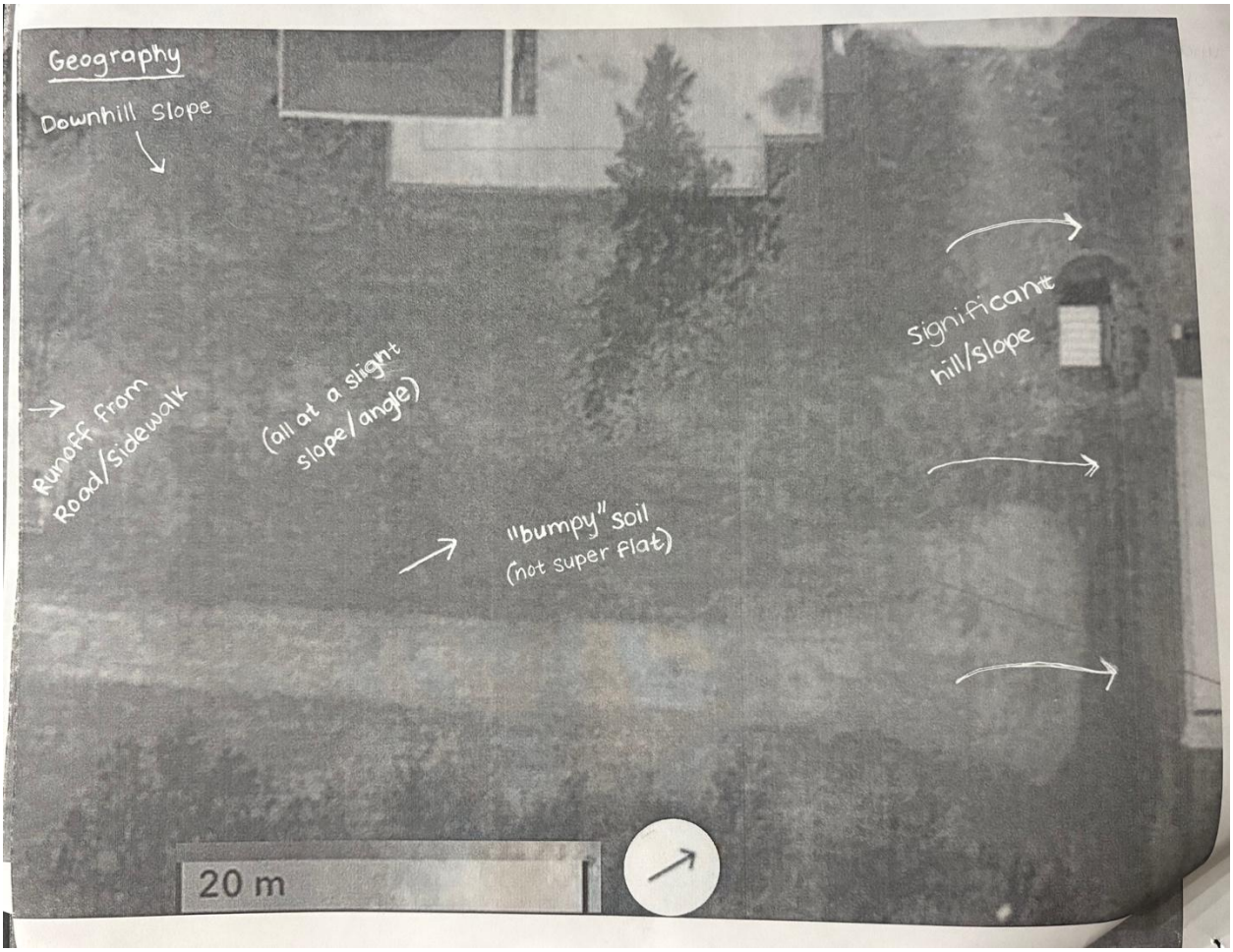
The vision for the food forest guild on Patch 87 of the St Thomas University Campus is a focus on food and refuge for students. The focus area is the space right off the sidewalk beside Holy Cross House, just before the Spruce tree. Using the corner space of the building, it is a perfect nook for an alcove—this would feature some form of seating surrounded by plants. The wide open space creates an opportunity for an outdoor/living classroom. A semi-circle layout with log seating adds to the outdoor aesthetic of the space as well as frames the learning space, making it somewhat separate from the food forest as a whole. A U-shaped path coming from the sidewalk will provide the community with a visible and accessible way of travelling through the food forest space. These plants were selected to give many benefits to those who harvest from it, and a majority of the species can be utilized in teas and cooking. Our design will maximize the space provided, and raised beds will allow for more diversity over the yields we can create. Overall, this space provides educational opportunity, relaxation, medicinal, and food advantages for students and community.

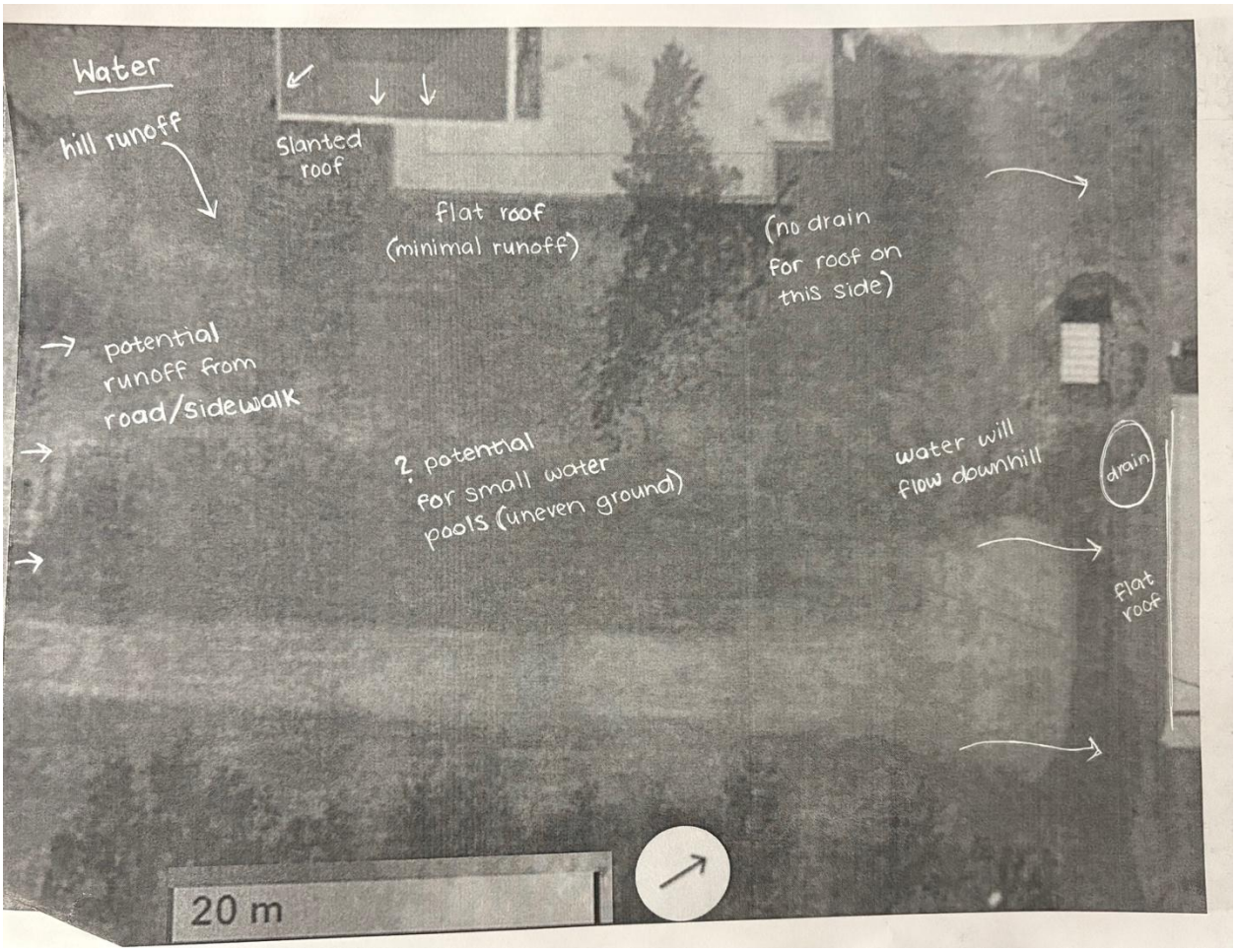
Site Analysis & Assessment

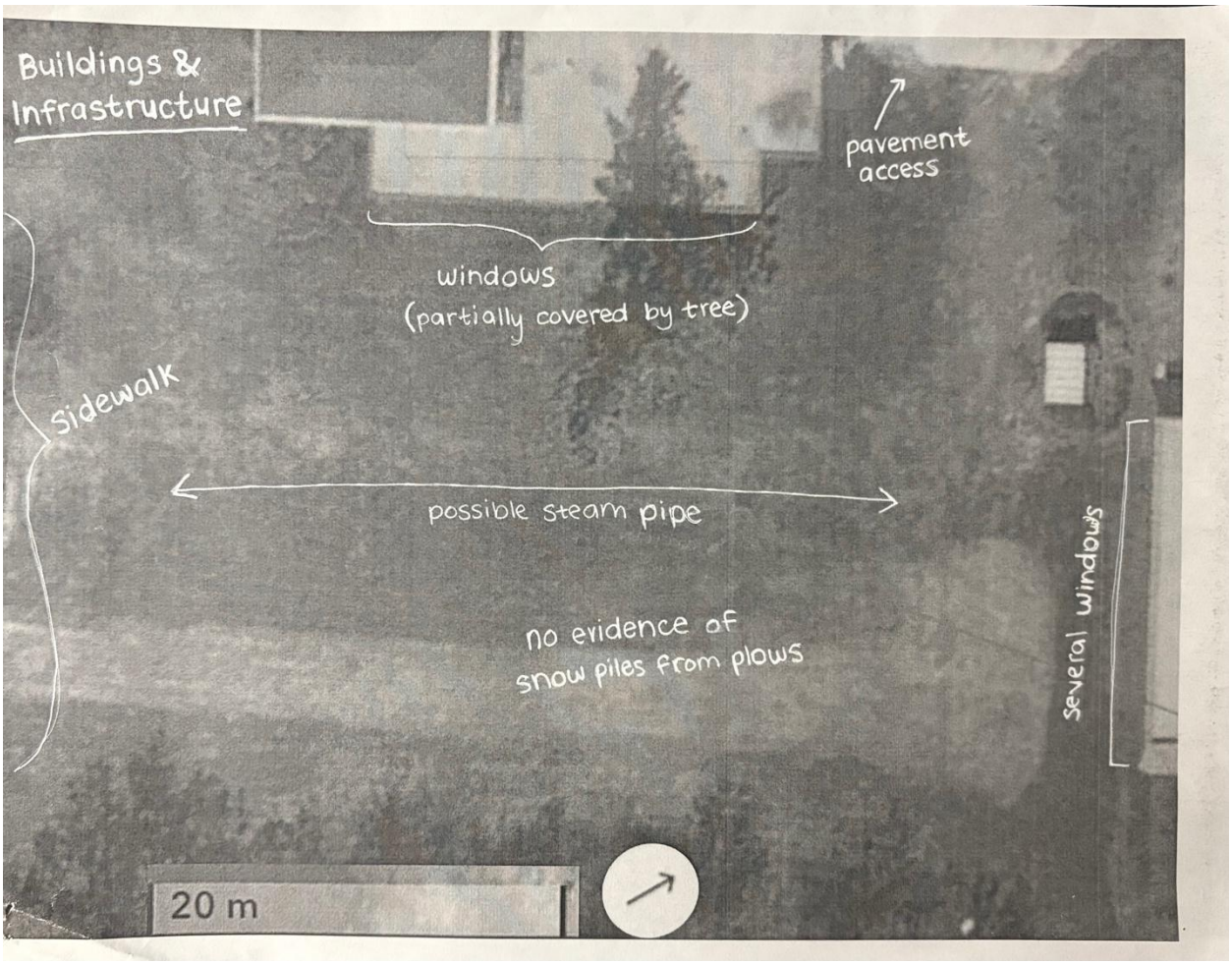


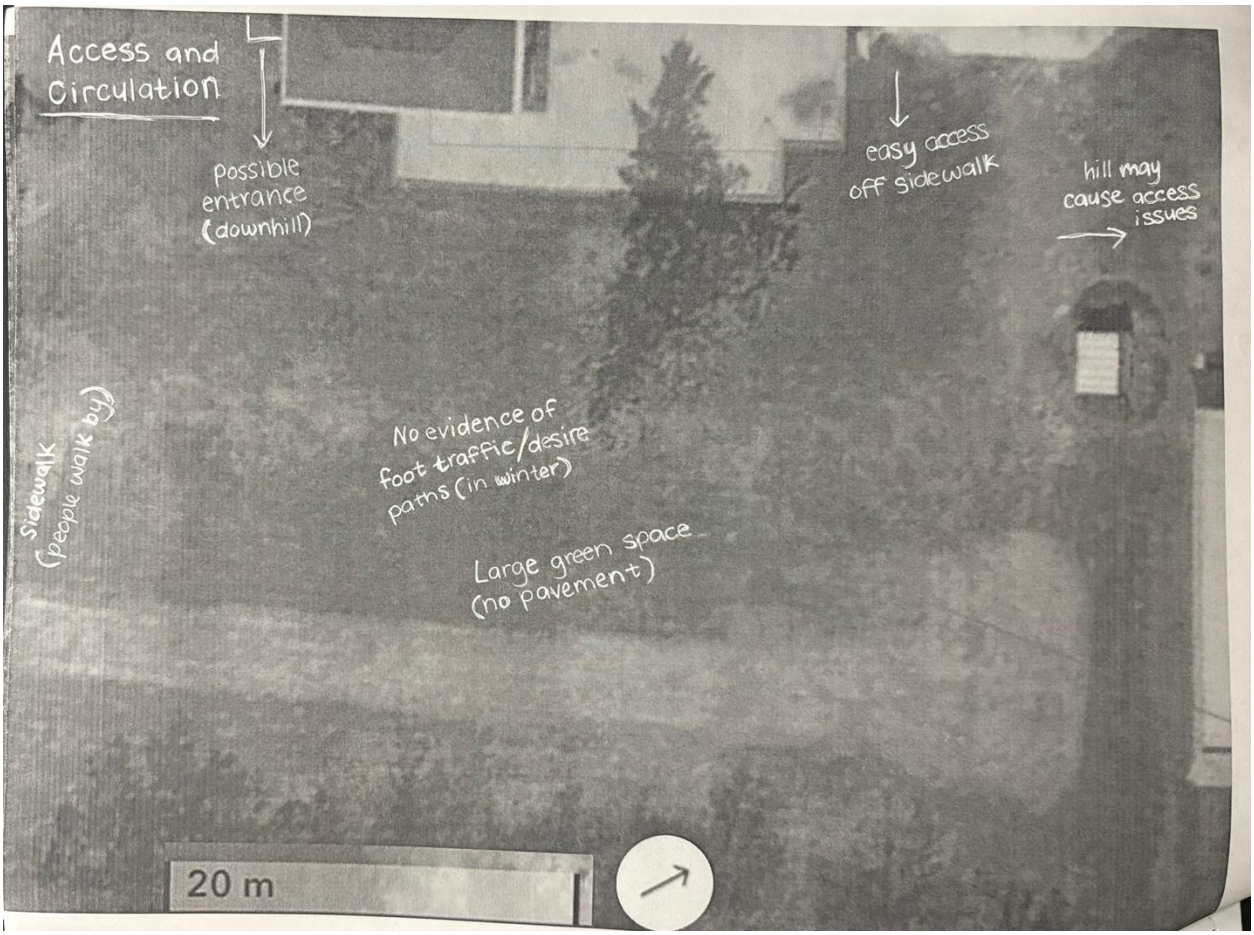

Sectors
smoke?
noise from campus
neighbours (daycare)
neighbours/views
?
traffic, pollution, smell, noise
pets on sidewalk?
neighbours
wind block
20 m

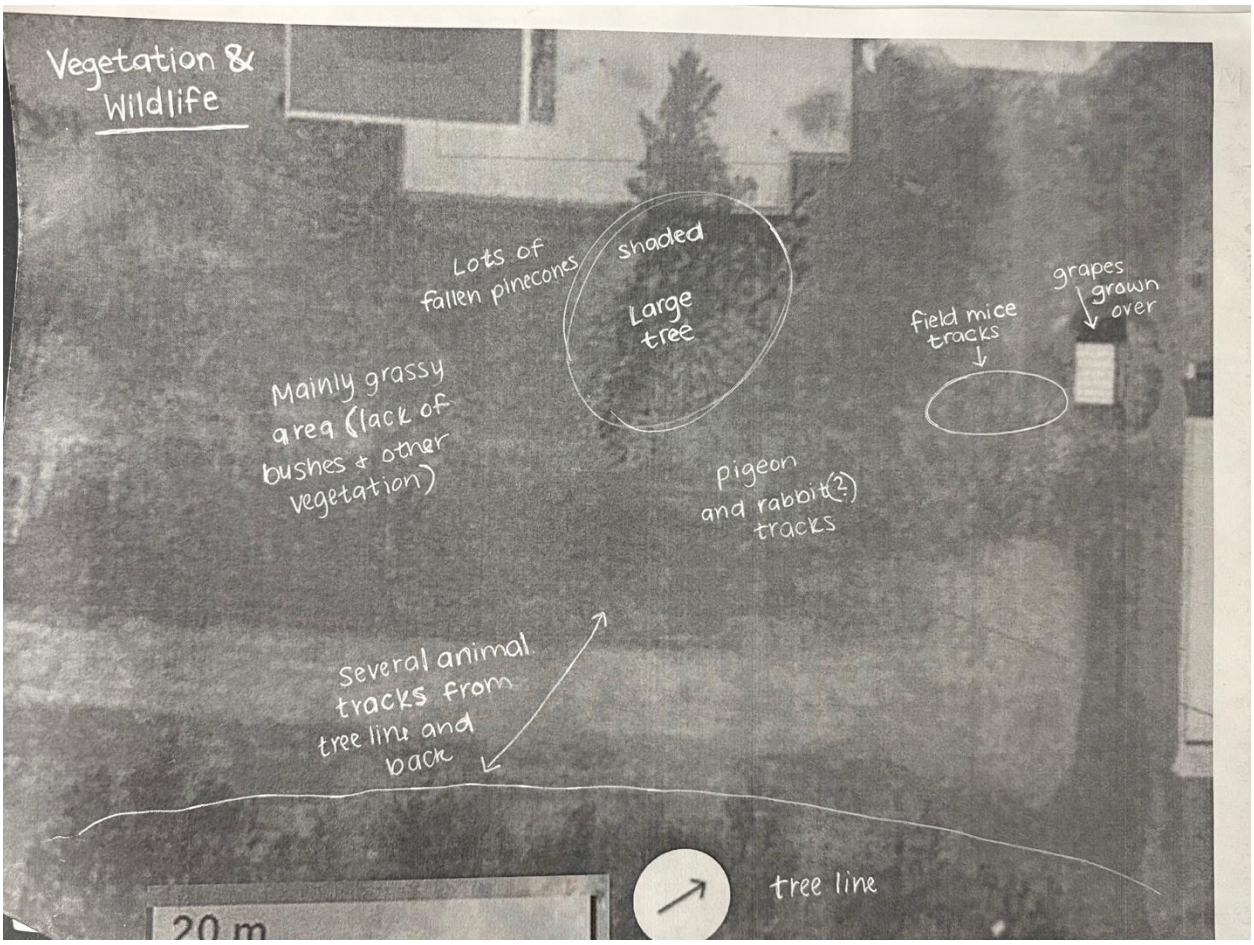

undirected observations
Hill (not many accessible * entrance points)
Seen from windows
Large tree
uphill entrance
avoid looking at
By the road but not too close
potential for a pretty place (lacking aesthetic)
Mostly flat (slight hill)
Seen from windows
Tree-line
20 m

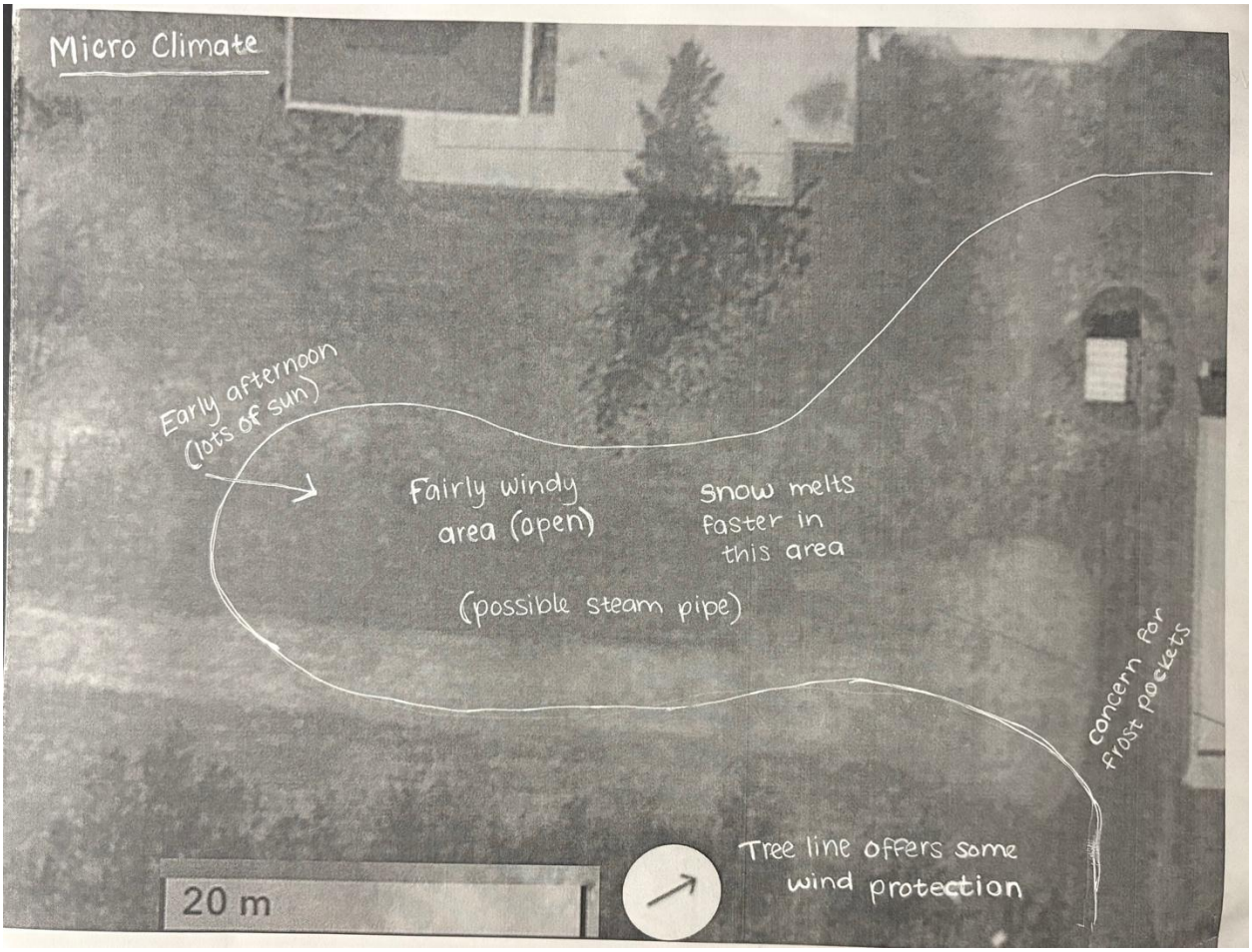

Geography
Downhill Slope
Runoff from Road/Sidewalk
(all at a slight slope/angle)
"bumpy" soil (not super flat)
Significant hill/slope
20 m

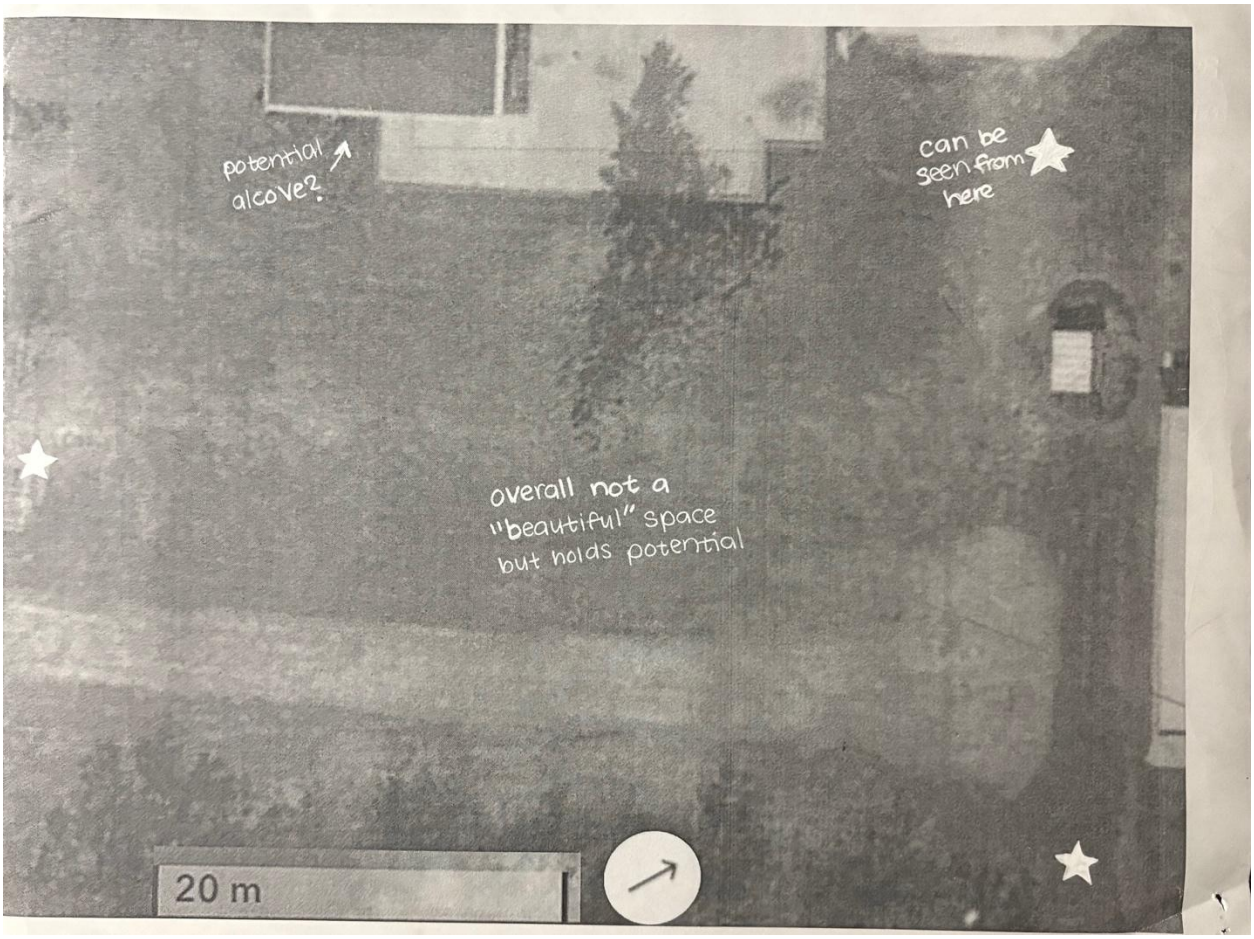

Water
hill runoff
slanted roof
flat roof (minimal runoff)
(no drain for roof on this side)
potential runoff from road/sidewalk
? potential for small water pools (uneven ground)
water will flow downhill
drain
flat roof
20 m

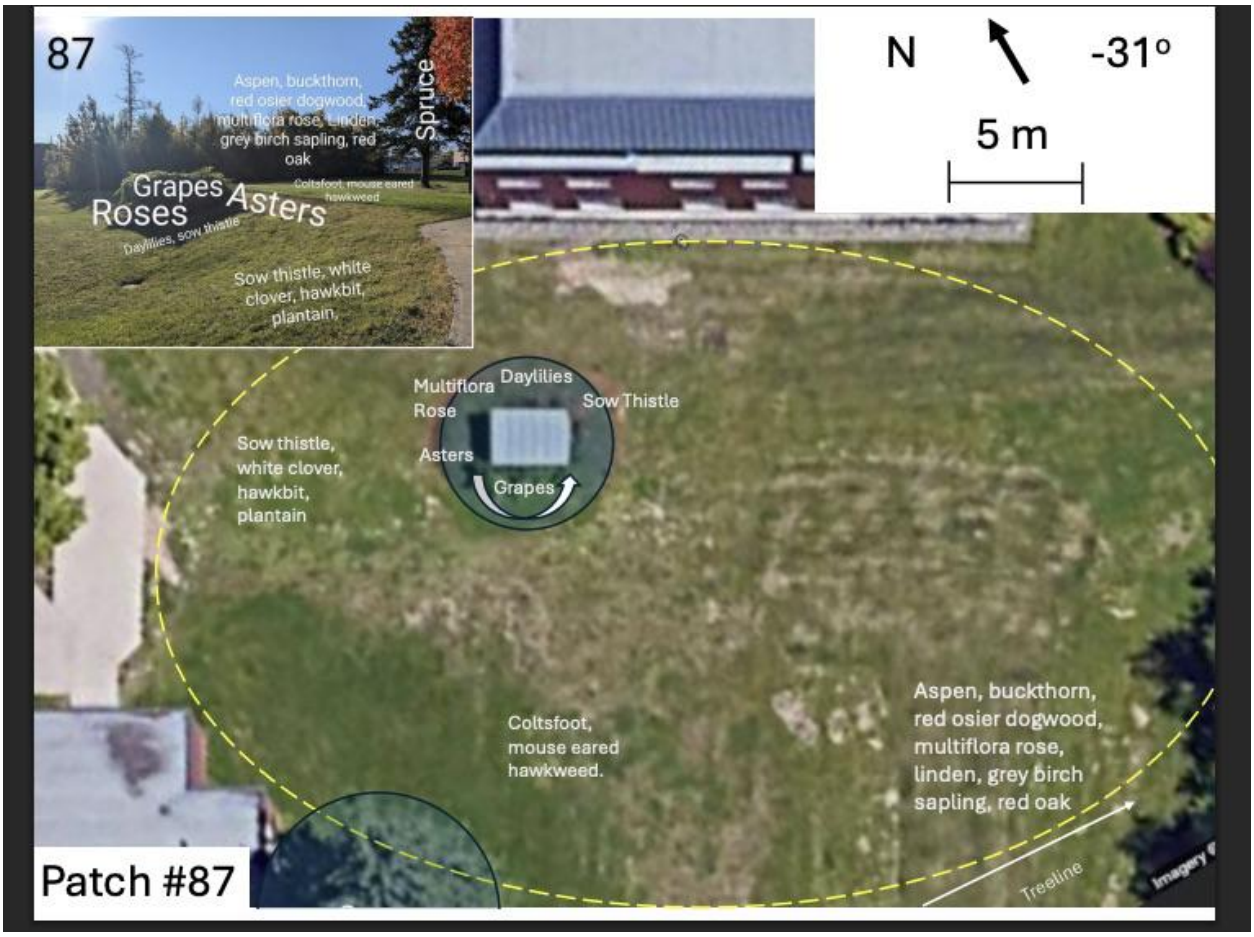

Buildings &
Infrastructure
pavement
access
windows
(partially covered by tree)
sidewalk
possible steam pipe
no evidence of
snow piles from plows
several windows
20 m


Access and Circulation
possible entrance (downhill)
easy access off sidewalk
hill may cause access issues
Sidewalk (people walk by)
No evidence of foot traffic/desire paths (in winter)
Large green space (no pavement)
20 m

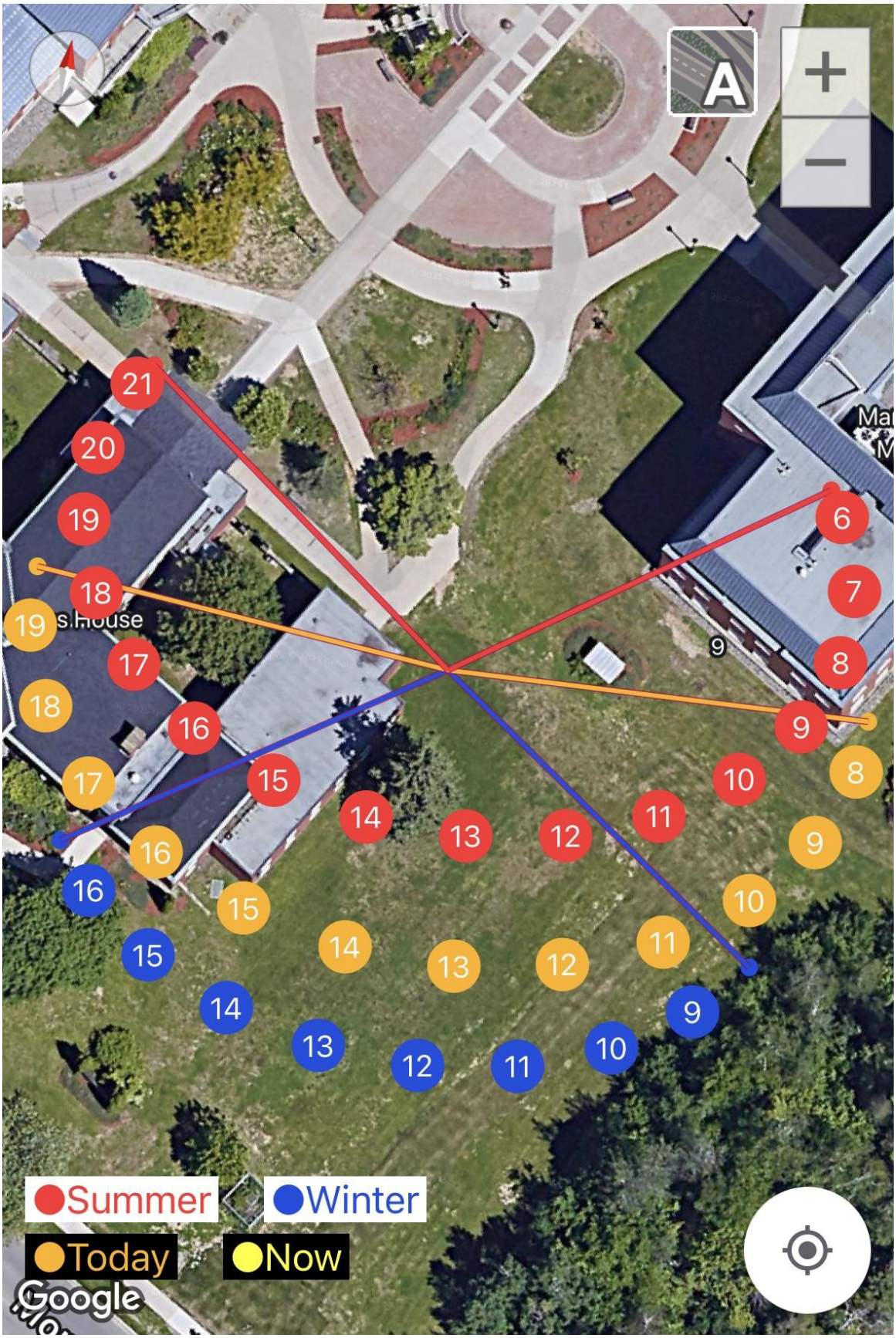

Vegetation & Wildlife
Lots of fallen pinecones
Shaded
Large tree
Mainly grassy area (lack of bushes & other vegetation)
Pigeon and rabbit(?) tracks
Field mice tracks
grapes grown over
Several animal tracks from tree line and back
tree line
20 m


Micro Climate
Early afternoon (lots of sun)
Fairly windy area (open)
Snow melts faster in this area
(possible steam pipe)
concern for frost pockets
Tree line offers some wind protection
20 m


potential alcove?
can be seen from here
overall not a "beautiful" space but holds potential
20 m

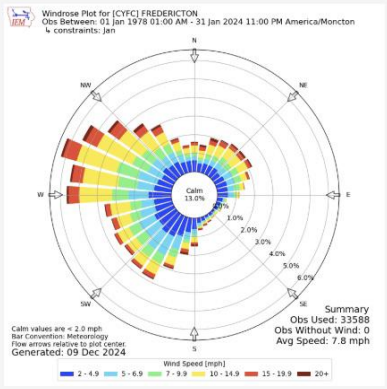

87
Aspen, buckthorn, red osier dogwood, multiflora rose, linden, grey birch sapling, red oak
Spruce
Grapes
Asters
Roses
Daylilies, sow thistle
Coltsfoot, mouse eared hawkweed
Sow thistle, white clover, hawkbit, plantain,
N
-31°
5 m
Multiflora Rose
Daylilies
Sow Thistle
Asters
Grapes
Sow thistle, white clover, hawkbit, plantain
Coltsfoot, mouse eared hawkweed.
Aspen, buckthorn, red osier dogwood, multiflora rose, linden, grey birch sapling, red oak
Treeline
Patch #87

Sun & Wind Maps

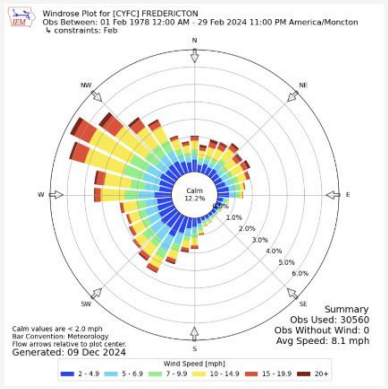


Monthly Climatology: (click thumbnail)

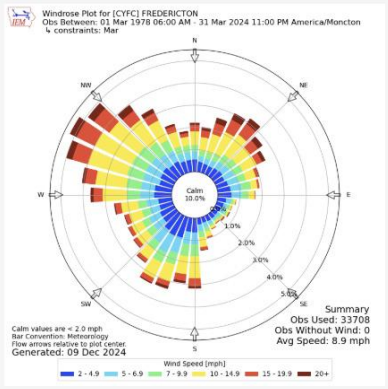
January View raw data



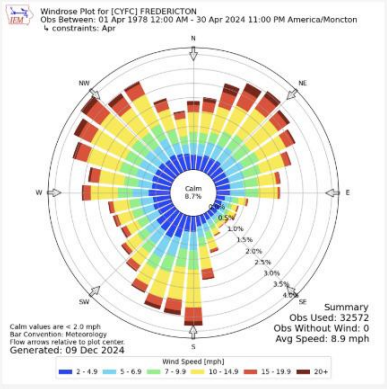
February View raw data



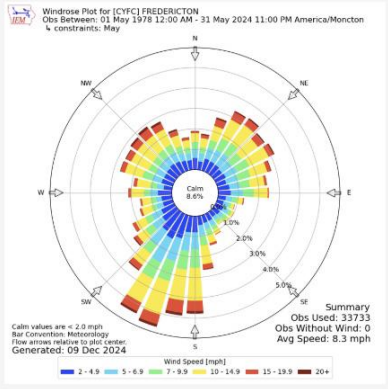
March View raw data



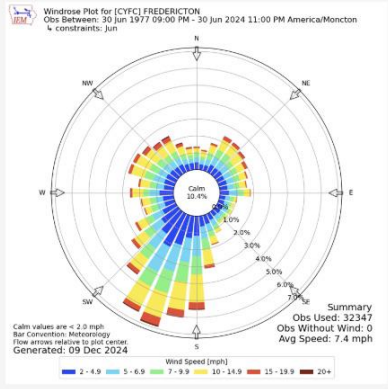
April View raw data



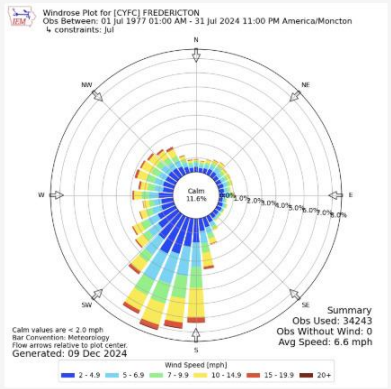
May View raw data



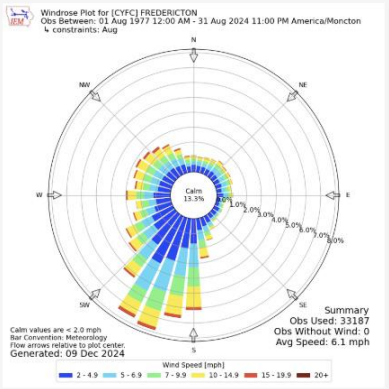
June View raw data



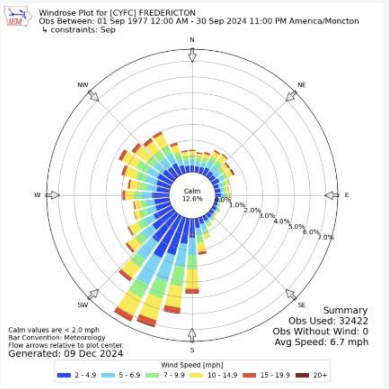
July View raw data



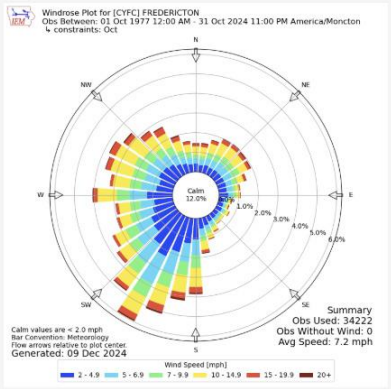
August View raw data



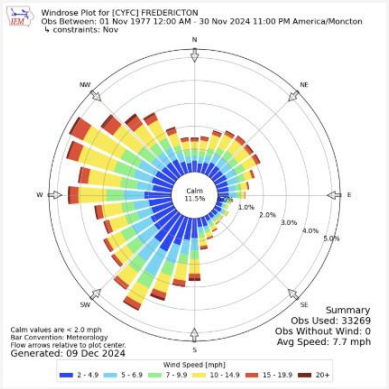
September View raw data



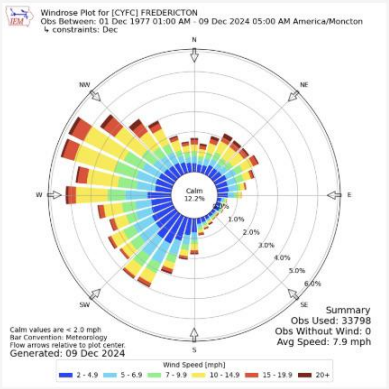
October View raw data

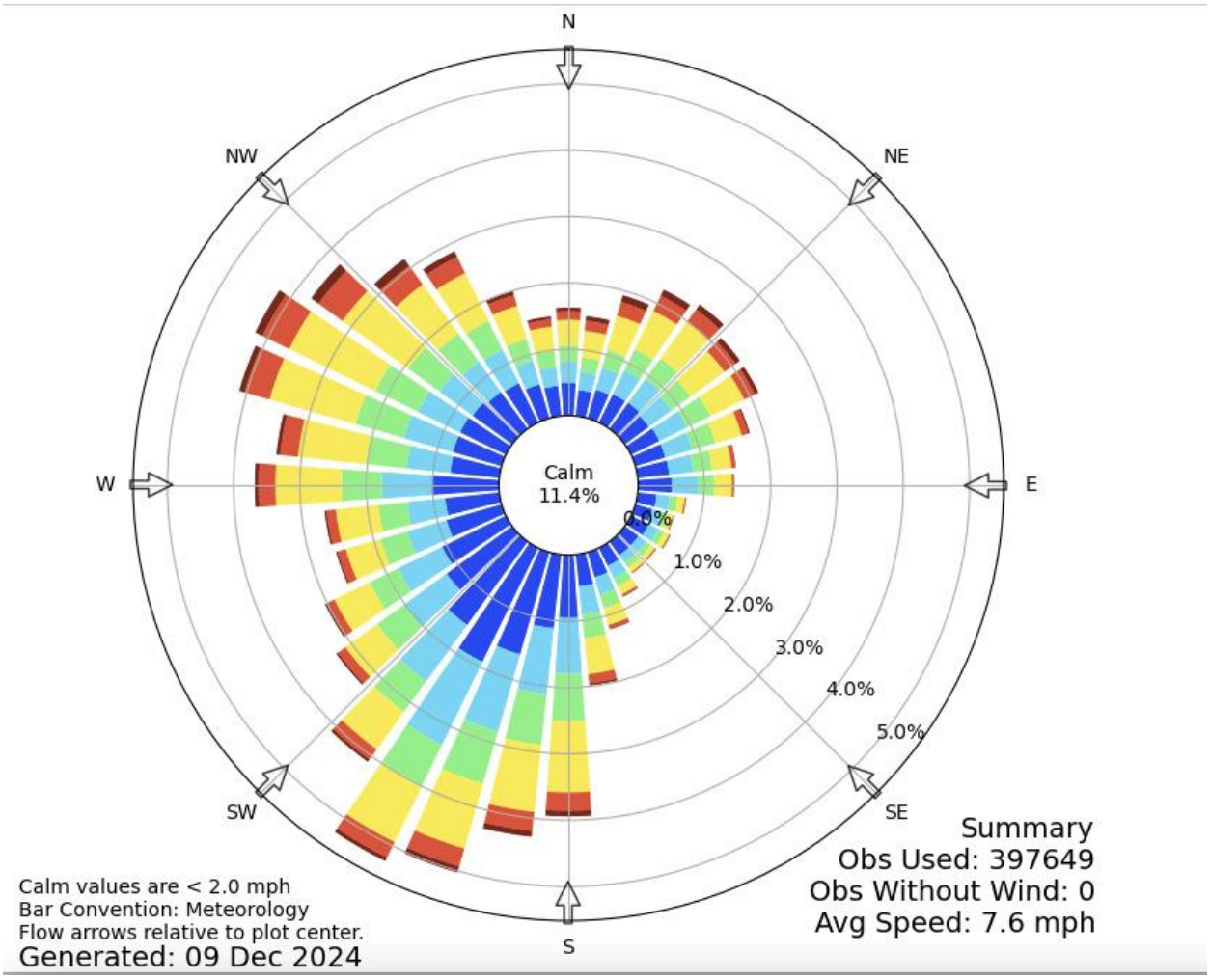


November View raw data

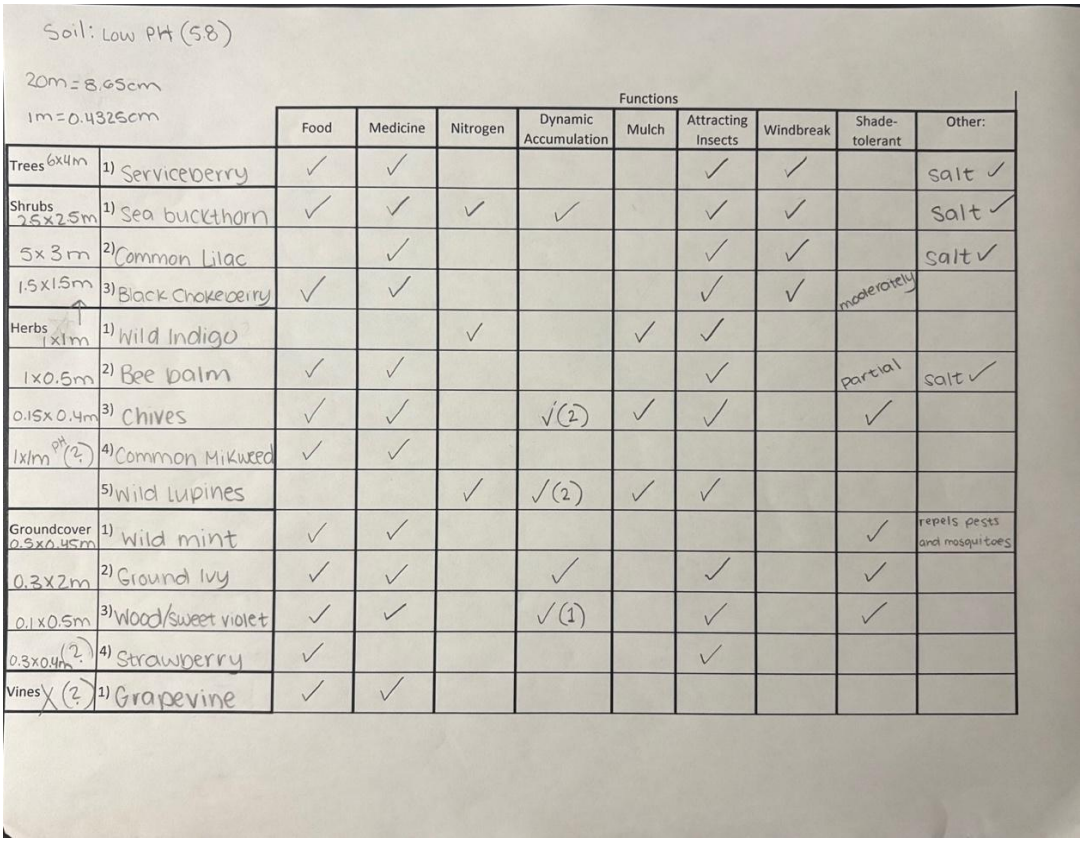


December View raw data




N
NE
E
SE
S
SW
W
NW
Calm
11.4%
0.0%
1.0%
2.0%
3.0%
4.0%
5.0%
Summary
Obs Used: 397649
Obs Without Wind: 0
Avg Speed: 7.6 mph
Calm values are < 2.0 mph
Bar Convention: Meteorology
Flow arrows relative to plot center.
Generated: 09 Dec 2024

Schematic Design



Soil: Low PH (5.8)

20m = 8.65cm

1m = 0.4325cm

		Functions								
		Food	Medicine	Nitrogen	Dynamic Accumulation	Mulch	Attracting Insects	Windbreak	Shade-tolerant	Other:
Trees 6x4m	1) Serviceberry	✓	✓				✓	✓		salt ✓
Shrubs 2.5x2.5m	1) Sea buckthorn	✓	✓	✓	✓		✓	✓		salt ✓
5x3m	2) Common Lilac		✓				✓	✓		salt ✓
1.5x1.5m	3) Black Chokeberry	✓	✓				✓	✓	moderately	
Herbs 1x1m	1) Wild Indigo			✓		✓	✓			
1x0.5m	2) Bee balm	✓	✓				✓		partial	salt ✓
0.15x0.4m	3) Chives	✓	✓		✓(2)	✓	✓		✓	
1x1m (2)	4) Common Milkweed	✓	✓							
	5) Wild Lupines			✓	✓(2)	✓	✓			
Groundcover 0.3x0.45m	1) Wild mint	✓	✓						✓	repels pests and mosquitoes
0.3x2m	2) Ground Ivy	✓	✓		✓		✓		✓	
0.1x0.5m	3) Wood/sweet violet	✓	✓		✓(1)		✓		✓	
0.3x0.4m (2)	4) Strawberry	✓					✓			
Vines X (2)	1) Grapevine	✓	✓							

		Functions								
		Food	Medicine	Nitrogen	Dynamic Accumulation	Mulch	Attracting Insects	Windbreak	Shade-tolerant	Other:
Shrubs	Wild Indigo			✓		✓	✓		✓	
	Lowbush Blueberry	✓	✓				✓		✓	
	Wintergreen	✓	✓		✓		✓		✓	
	Blackberry	✓	✓				✓		✓	
Herbs	Oregano	✓	✓		✓		✓		✓	
	Shallot	✓	✓				✓		(partial) ✓	
	Chamomile	✓	✓		✓		✓		✓	
	Sheep Sorrel	✓	✓		✓(3)				✓	
	Good King Henry	✓							✓	
Groundcover	Wood/Sweet Violet	✓	✓		✓(2)		✓		✓	
	Lemon Balm	✓	✓		✓(1)		✓		✓	
	Ground Ivy	✓	✓		✓		✓		✓	
	Alpine Strawberry	✓	✓		✓		✓		✓	

Patterns

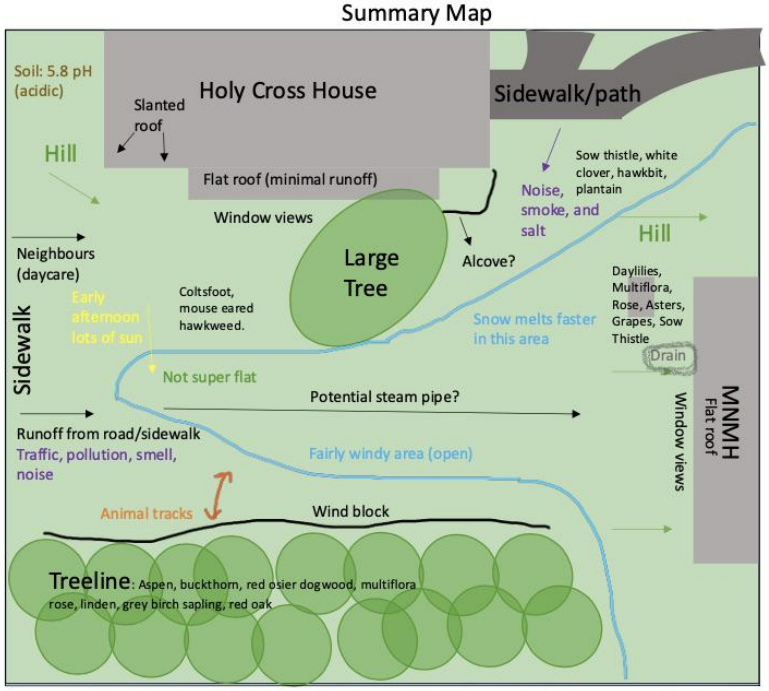
- 36 Degrees of Publicness
- 120 Paths and Goals
- 163 Outdoor Room
- 160 Building Edge
- 241 Seat Spots
- 179 Alcoves
- 185 Sitting Circle

Needs & Yields Analysis

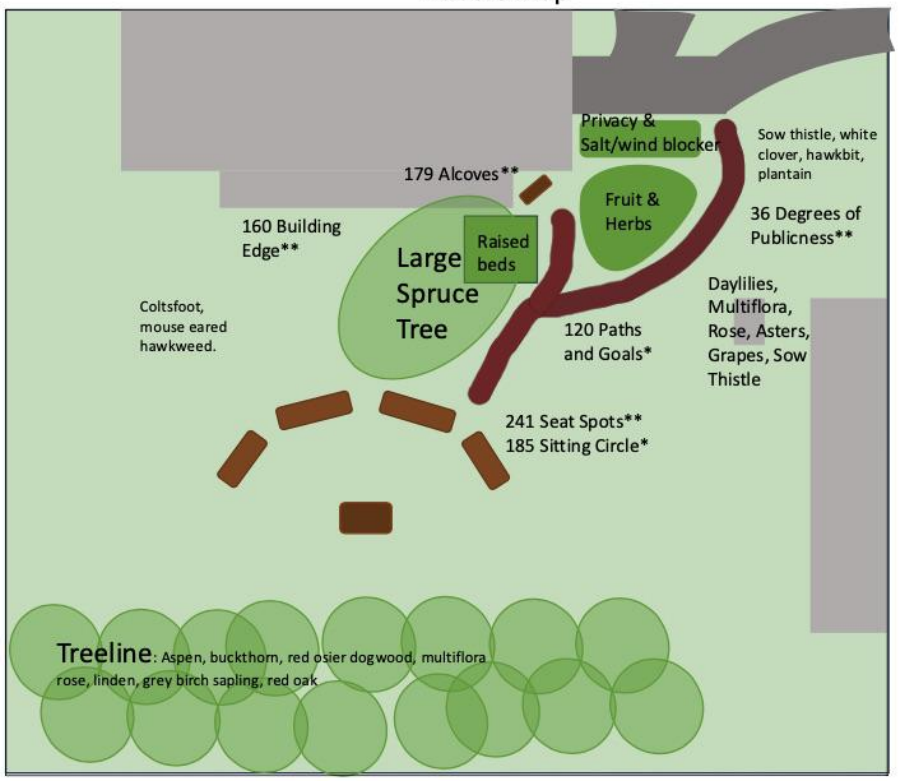
Nitrogen Fixers (Wild Indigo, Sea Buckthorn, Wild Lupines) improve soil fertility for fruiting plants. **Pollinator Support** (Bee Balm, Serviceberry, Milkweed, Wild Mint, Chives, Violets) attracts beneficial insects. **Edible & Medicinal Plants** (Serviceberry, Sea Buckthorn, Chives, Wild Mint, Strawberry) provide food for humans and wildlife. **Ground Covers** (Strawberry, Ground Ivy, Wood/Sweet Violets) reduce soil erosion and suppress weeds.

Design Concept

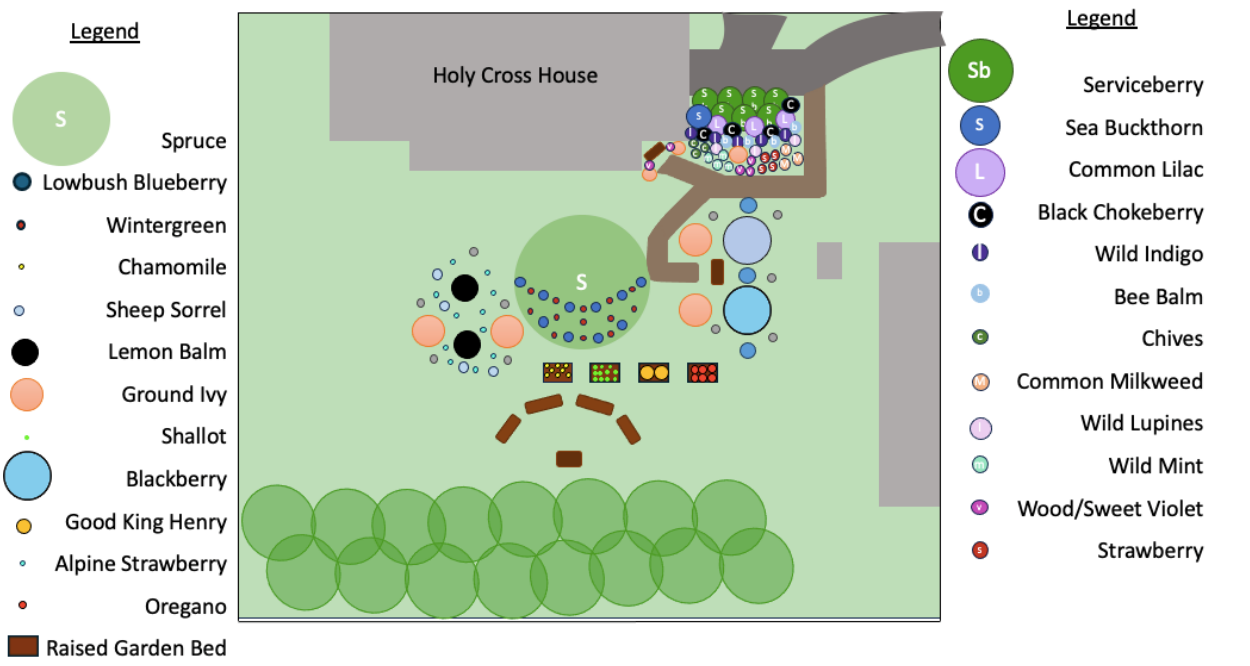
Summary Map



Bubble Map



Guild Design



- All species of plants selected for this design are perennials, and are selected according to their soil and shade tolerance
- This design focuses on utilizing the natural zones, while creating a more attractive and functional space
- Wild Indigo was selected to contribute to the long-term soil health, since it is a dynamic accumulator
- The spruce tree introduced the challenge of shade and acidic soil, so lowbush blueberry and wintergreen can make this space functional
- Raised beds allow for more variety of plants, providing opportunities for more food production
- Seating areas such as the outdoor classroom and hidden benches are utilized to create an inviting space for students as well as community members
- Allows space for student involvement and hands on education, by integrating well known edible plants, as well as identifying lesser-known species with signage

Implementation & Maintenance

- Ordering plants:
    - Bareroot serviceberry -> Springfield Trees
    - Bee Balm, Chives, Lemon Balm, Oregano -> Sima's Roots & Fruits
    - Blackberry, Low Bush Blueberry, Sea Buckthorn, Strawberry, Wintergreen -> Whiffletree
- Collection supplies:
    - Cardboard
    - Mulch
    - Woodchips

This is an outline of what implementing this design could look like. We would rely on grant funding, student involvement and community to plant and maintain a healthy food forest.

Year 1:

- Assess where the extended path will be implemented and place the stone path, (continue to mow around this pathway to prevent plants from spreading)
- Add compost, mulch, cardboard and wood chips in areas surrounding the seating as well as around the spruce tree
- Plant the bareroot trees & shrubs
    - Heavily water and compact the soil to remove the air pockets -> make sure the roots do not dry out
- Plant low bush blueberry and wintergreen under the spruce to develop a deep root system

- Install raised beds (attached to outdoor classroom seating or adjacent to the spruce) and plant early crops
- Plant wild indigo, violets, ground ivy and blackberries to establish the natural edge as well as provide nitrogen fixation
- Water weekly for first season

Year 2:

- Plant alpine strawberries, sheep sorrel, lemon balm and more violets to fill the open areas, providing more ground cover
- Leave leaf fall off to naturally decompose as well as adding more mulch and compost where necessary
- Install the bench within the blackberry grove
- Maintain moisture for mulch

Year 3:

- Monitor plant succession and allow them to spread, mowing by the pathway will control where the blackberries can spread, as to not overrun the food forest
- Invite community and class participation for harvests and maintenance
    - Events like jam/jelly workshops to preserve the yield
    - Perma-blitzes
- Continue allowing organic material to return to the soil each season

References

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