



YIELD

GARDENS FOR AGRITOURISM

KENWORTH TEJERO SAYSON

YIELD: Gardens for Agritourism

By Kenworth Tejero Sayson

A Practicum submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirement of the degree:

MASTER OF LANDSCAPE ARCHITECTURE

Department of Landscape Architecture
University of Manitoba
Winnipeg, Manitoba, Canada

Copyright © 2024 Kenworth Tejero Sayson

This document is best viewed using the page display settings for 'two-page layout' with the 'cover page showing' in your PDF viewer.

ACKNOWLEDGEMENTS

To my committee, Dietmar Straub, Leanne Muir, and Lauren Reeves, thank you for your invaluable thoughts, time, guidance and patience.

To Tim Upton and Beryle Girard thank you for giving me the opportunity to visit TimBer Landing and for sharing your hopes and dreams which led to the topic and site of this practicum.

To my friends and colleagues, thank you for waiting and coming along this journey with me.

To Luke Stoughton, your unwavering support and encouragement have been my beacon of hope; without you, this endeavour would not have been possible.

Lastly, I want to dedicate this accomplishment to the Sayson and Tejero family and my Grandma Amparo; I hope I have made you all proud.

TABLE OF CONTENTS

ABSTRACT	iv	4.4 Sun Path & Shadow Study	45
STATEMENT OF INTENT	vi	4.5 TimBer Landing Biodiversity	47
CHAPTER 1 - INTRODUCTIONS		4.6 Climactic Future	48
1.0 Topic Introduction	1	4.7 Microclimate	51
1.1 Connection to Agriculture	5	4.8 3D Modeling Exercise	53
1.2 Site Introduction	7	4.9 Design Parameters & Impact Assessment	73
CHAPTER 2 - CASE STUDIES		CHAPTER 5 - THE VISION	
2.0 Agritourism Case Studies	9	5.0 Owner's Vision	81
2.1 Conclusion	13	5.1 The Response	83
2.2 Sustainable Agritourism	15	CHAPTER 6 - SITE DESIGN	
CHAPTER 3 - REGIONAL ANALYSIS		6.0 Proposed Programming	85
3.0 Ecological Land Classification	21	6.1 Conceptual Design	87
3.1 Ecoregion - Southeastern ON	25	6.2 Clearing Site Plan	89
3.2 Ecodistrict - Frontenac Arch	29	6.3 Phasing Plan	91
3.3 Conclusion	33	6.4 Yield Opportunities	93
CHAPTER 4 - SITE ANALYSIS		6.5 Orchard Meadow	95
4.0 Site History	37	6.6 Vineyard Winery	101
4.1 Existing Infrastructure & Site Features	39	6.7 Field Gardens	107
4.2 Forest Strata	41	6.8 Trail System & Nodes	113
4.3 Site Substrate	43	YIELD - CONCLUSION	125
		REFERENCES	127

ABSTRACT

The practice of agriculture has always been a major part of my life; as early as I can remember, I was always close to the fields and forests. In these places, I learned the value and beauty of working the land, with nature, and as a community. My connection to the topic of agritourism is deeply rooted in my upbringing and experiences. This connection has fueled my passion for this project and shaped my approach to the design. Yield: Gardens For Agritourism is about celebrating the values of my childhood through the lens of agritourism and revealing the beauty of TimBer Landing by creating a design proposal for an agritourism destination that aligns with the landowner's vision. TimBer Landing, named after Tim and Beryle, acquired the land in 2020 and is located an hour and a half southwest of Ottawa. The site is adjacent to Frontenac Wilderness Provincial Park. It is incorporated into the greater area known as the Frontenac Arch Biosphere Reserve, designated as a nature reserve by UNESCO. The approach for this practicum is based on landscape architecture and design that aims to satisfy the landowners' needs and desires while respecting the site's ecological context of the site and its surroundings. Through agritourism, I have expanded my horizons and perception of agriculture. I was able to reconnect with my heritage and learn to take pride in and celebrate where I come from.



Figure 1. Fields on Île d'Orléans, an agritourism island outside of Quebec City, QC, CA



Figure 2. Pasture on Île d'Orléans with the Laurentian Mountains in the background, QC, CA



Statement of Intent

After hearing from two curious individuals who wanted to transform their land for cultivation and agritourism, my advisor approached me to see if I was interested in the topic and their site. I did not hesitate and grasped this unique opportunity. The premise of this practicum is to develop and elaborate a design based on site inventory and analysis to create spaces where agricultural and agritourism activities can be fostered and celebrated. The proposed design will address sustainability and stewardship of the practicum site as a long-term viability of agriculture and tourism in the region, which aligns with the current Canadian Tourism Strategy and the United Nations World Tourism Organization (UNWTO) mandate for sustainable development.

“Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities”¹

First, this practicum will investigate and define agritourism and how it differs from other forms of tourism. Second, it will introduce examples of agritourism, highlighting what we can learn from these precedents. Lastly, it will elaborate on the existing topographical, hydrological, climatic, biological, historical, and regulatory contexts that govern the region and site. The outcome is to propose a design to develop the site at various scales to help the landowners translate their dreams into an ecologically appropriate landscape architecture design.

1 Sustainable development | UN Tourism, n.d.



Figure 3. Rice paddy field adjacent to Rendezvous Resort, Albay, Philippines



Figure 4. Agricultural field in St-François, Île d'Orléans, Quebec, Canada

CHAPTER 1 - INTRODUCTION

1.0 - Practicum Topic Introduction

What is agritourism? As the name suggests, it combines two ideas that surprisingly synergize well. First, it derives from Agri, which in Latin means field, or Agros in Greek, meaning soil combined with tourism, defined as a form of active recreation away from one's place or residence by cognitive, recreational, and sports needs. A commonly accepted definition of agritourism is "tourist activities that aim to familiarize oneself with farming activity and recreation in an agricultural environment".¹ The term is not new and has appeared in international literature for nearly four decades. Over the years, agritourism has evolved to more than just the concept that a farm is the sole entity delivering tourist services. It has diversified dramatically and continues to create opportunities, such as placemaking, a unique niche for business, and a catalyst for regional/rural developments and opportunities for land stewardship. These opportunities create jobs for the rural area and help strengthen communities amongst other social, cultural, and educational benefits.

¹ Sznajder, Scrimgeour, & Przezbórska, 2009, p. 9.

Agritourism, on the surface, might seem like another business venture for those who have land and capital, but its introduction to an area functions primarily in the following categories. The first is the socio-psychological functions, relating to interaction with rural communities, creating opportunities to share rural and urban culture, traditions, and lifestyle.¹ These opportunities can take the form of learning new skills, gaining experiences, learning a profession or creating new contacts and social ties through meeting new people. Many people also partake in agritourist activities that involve traditional rural functions such as direct access to produce or the development of rural culture by participating in a more recent form of an annual celebration. Examples of a contemporary yearly celebration form include the Gladiola Festival or a Pumpkin Drop hosted by Black Fox Farm & Distillery near Saskatoon, Saskatchewan. Lastly, there are the educational functions relating to natural systems, history/heritage, learning and garnering respect for producers and their goods, and creative activities through crafts.

¹ Sznajder, Scrimgeour, & Przezbórska, 2009, p. 10-11.

The second function of agritourism relates to the economic aspect. The opportunities in this function are generally quantifiable and see an economic stimulation in the agricultural, horticultural, and animal-breeding industries.¹ Farmers commonly provide agritourism activities because it helps offset costs by providing additional income. We also see a stimulation in hospitality services through the provider of agritourist activities or in the local community. Overall, one of the most important aspects of this function is the creation of jobs, whether permanent or seasonal.

The last of the three agritourism functions is related to the spatial and environmental aspects. Since agritourism is a development process generally situated in a natural or cultivated environment transformed to accommodate visitors, there is an emphasis on negating or minimizing the potential damage to the natural and anthropogenetic environments.² The opportunities in this function include projects and initiatives to enhance, protect, and create natural habitats that visitors can access. There are also opportunities to engage local and regional governments to develop local infrastructures such as roads, public transportation, recreational facilities, water supply and waste and sewage treatment.

The challenge is to hone into aspects of agritourism that will synergize well with the chosen site and the vision of the landowners. Doing so will reveal the potential of the site as an agritourism destination.

1 Sznajder, Scrimgeour, & Przezbórska, 2009, p. 10-11.

2 *ibid*



Figure 5. Local coconut plantation, Pulangui, Albay, Philippines



1.1 - Connection to Agriculture

To the north, a major national highway; to the east, a mountain range; to the south, a river delta; and to the west, a major provincial city. My home was situated within these landscape features, and from childhood, everything else in between was homes along roadways and farmlands. I lived in a small village in the northeastern part of the island of Luzon, Philippines. Life in the probinsya, which translates roughly to rural province settlements, was slow with never a dull moment. As a child, the rice fields, foothills, forests, and rivers were my playground, and perhaps this is where my affinity for landscapes and nature started to develop, which begs the question, why agritourism? This topic sparked my interest because of how I was brought up and the kinds of spaces I enjoyed playing and learning in. Agriculture matters to me because my parents come from farming families and, more specifically, practiced sustenance farming. The first nine years of my life I was surrounded by animal and crop farming, and I can still vividly recall playing with mud in the rice fields as a small child.

In the short time I lived this way, it has engrained a sense of pride in where I come from and the value and beauty in working the land, with nature, and as a community. This practicum journey is more than just a series of checklists I must complete to get my degree; it is a journey of exploration as I navigate southeastern Ontario, Saskatchewan, Manitoba, and Quebec for inspiration and project precedents. This journey is about honing my skill sets and passion for the study and discipline of landscape architecture. It is about paying homage to my roots, but above all, it is about celebrating rural landscapes and protecting our precious ecosystems.

I am excited to work through this practicum and design spaces that could emulate my joys and experiences as a child who grew up surrounded by agriculture. Creating more places that cater to the agritourist experience and promoting existing businesses can only strengthen our relations with each other and our landscape.



Figure 6. Paing, Bantay, Ilocos Sur, Philippines - Photo facing East towards the Quirino Bridge

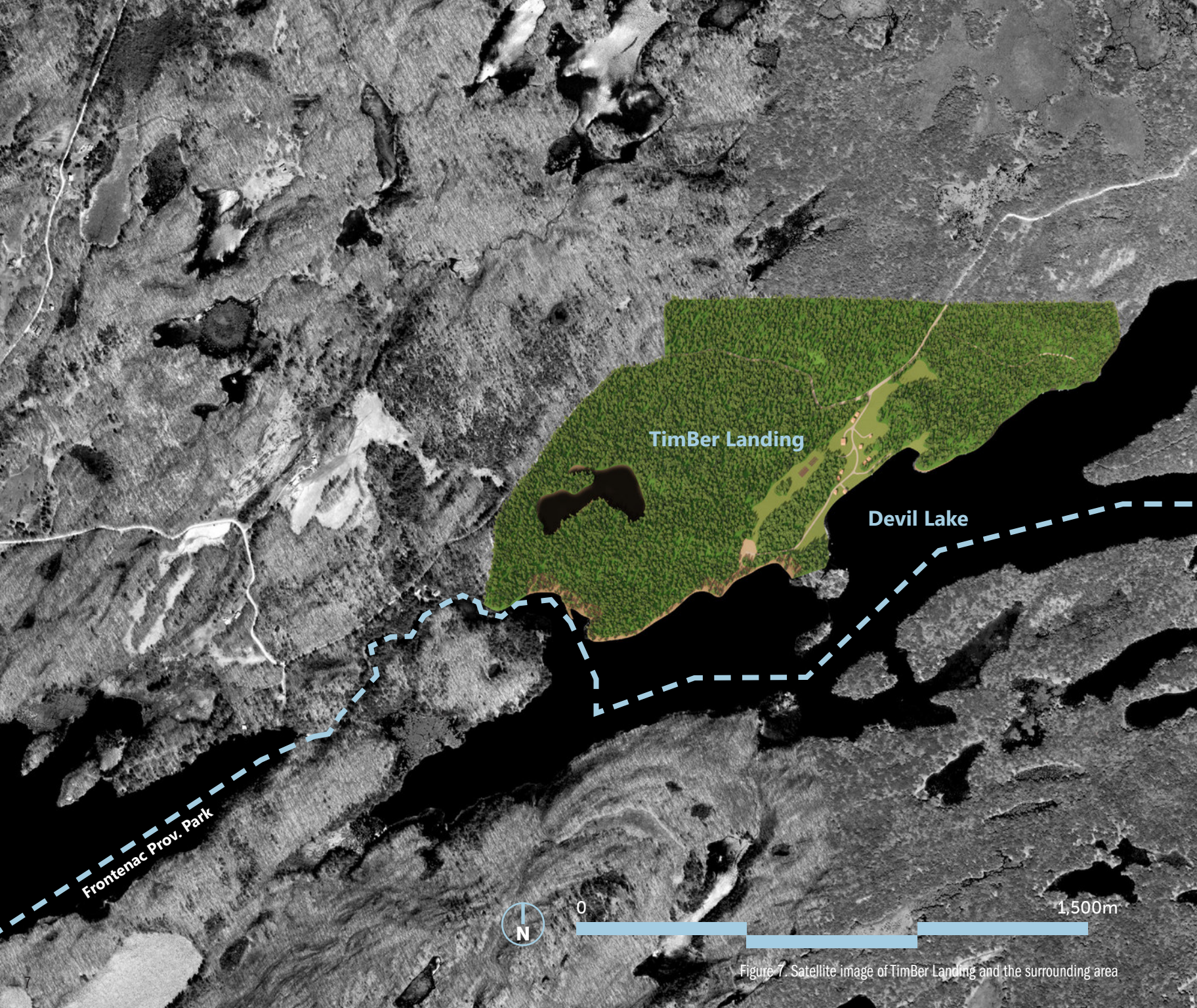
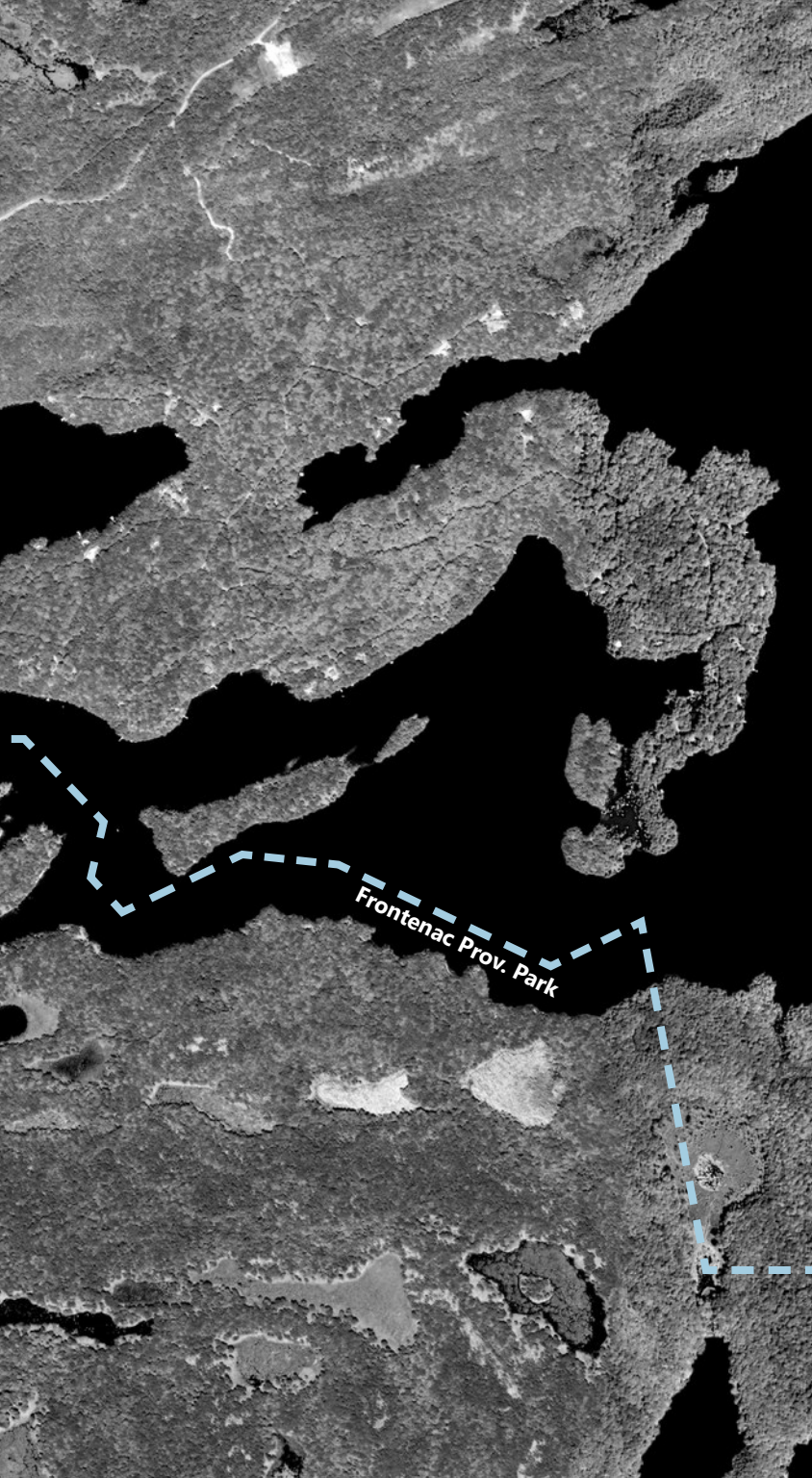


Figure 7 Satellite image of Timber Landing and the surrounding area



1.2 - Site Introduction

The proposed study site is TimBer Landing, named after Tim and Beryle, who purchased the property in 2020. The site is located in Ontario, an hour north of Kingston, with the closest settlement being Westport, Ontario. The site is adjacent to Frontenac Wilderness Provincial Park. It is incorporated into the greater area known as the Frontenac Arch Biosphere Reserve, which is designated as a nature reserve by UNESCO. The Provincial Park offers many opportunities for visitors, such as camping, hiking trails, wildlife viewing, fishing, and canoeing. Aside from the park, the surrounding area is frequented by cottage owners all year round. The pristine Devil Lake that separates the Provincial Park and TimBer Landing restricts a significant amount of development close to the water as it is categorized as "Lake Trout Sensitive." The 240-acre property with 2 km of shoreline is breathtaking from all directions. The owner's vision for the site is to introduce agritourism to the area as their retirement project. With the generosity and hospitality of Tim and Beryle, a site visit was conducted in October of 2021. The visit included staying in one of the recently renovated cabins, a guided tour of the site, and a dinner with the family, with numerous stories about the site, the owner's family history, and their aspirations for TimBer Landing. In the two days of exploring the site and the adjacent area and having discussions with locals, it was clear that the landscape and the people who resided around Devil Lake are proud and eager to share its abundance of beauty. The landscape is rugged and serene and full of many surprises.

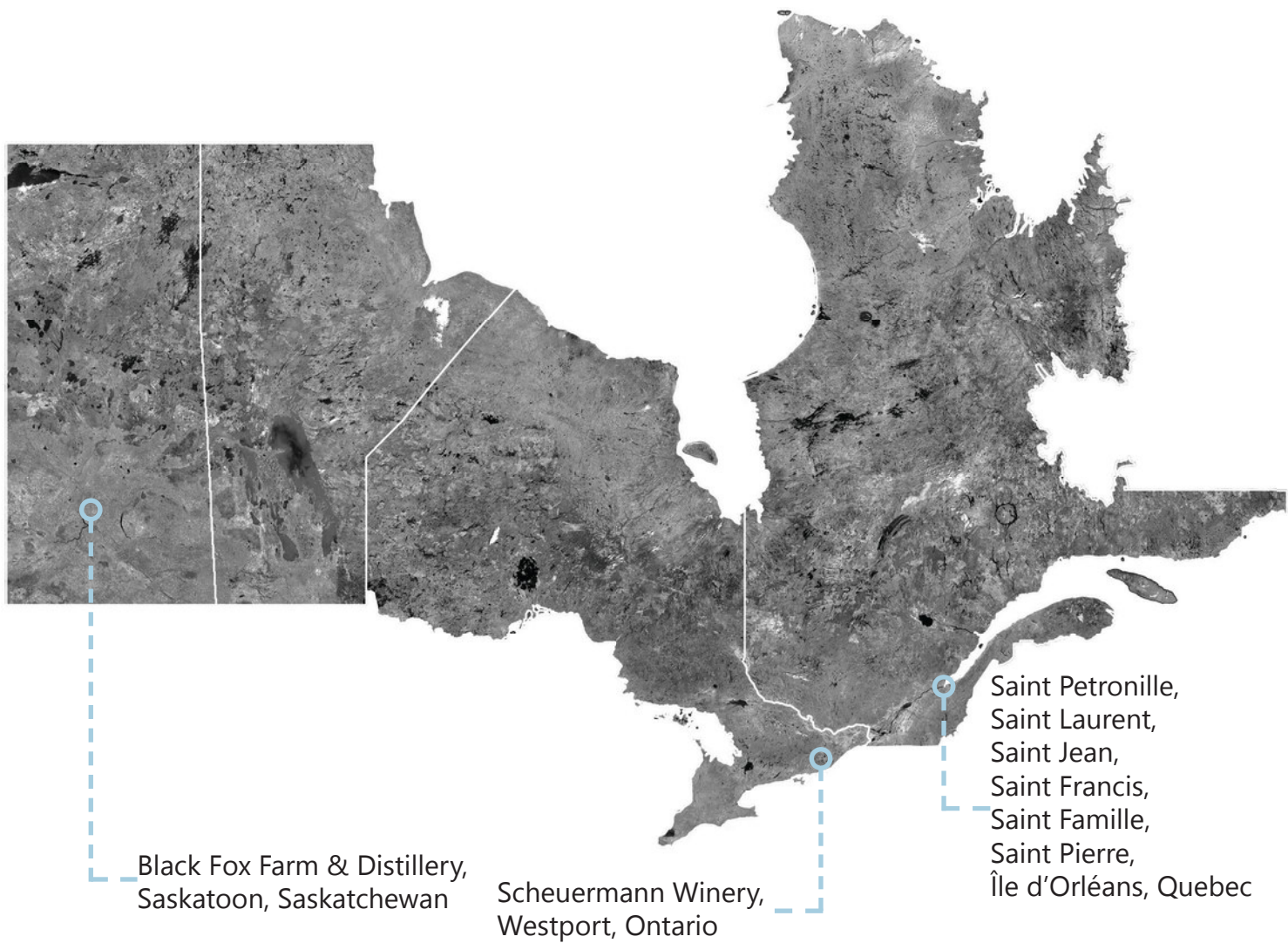


Figure 8. Location of case studies in relation to each other

CHAPTER 2 - CASE STUDIES

2.0 Agritourism Case Studies¹

Agriculture is one of Canada's biggest industries, especially in the western provinces and southern Ontario, and Canadian agritourism is some of the best in the world. This section references the work completed in the Topics Course LARC 7400. The examples included a distillery in Saskatchewan, a winery in Ontario, and six villages on an island in Quebec that were visited and are successful precedents for Canadian agritourism.

¹ Sayson, K. 2023.

Île d'Orléans, Quebec, is steeped in rich cultural and agricultural history. Presently, it is known as an island for agritourism, attracting visitors world wide. It was previously described as the cradle of food production for Nouvelle-France. The island is home to six parishes, each with unique charm and specialties. More than 80% of the island's total land area is dedicated to agriculture/orchards and raising livestock. Even the areas too steep and rocky to clear and cultivate have been groomed to produce maple syrup. Île d'Orléans has something to offer everyone: farm tours, produce picking, farm-to-table culinary experiences, spirit and alcohol product tasting, and a wide range of lodging accommodations from historic buildings and rustics-modern Airbnb to small hotels. While there are seasonal active experience such as strawberry picking, the majority of tourist activities are passive agritourist activities that is centered around consumption or site seeing.



Figure 9. Gladiolus flower field, Black Fox Distillery, Saskatoon, Saskatchewan

Scheuermann Vineyard and Winery are nestled in the small village of Westport, Ontario, just minutes from TimBer Landing. This precedent is particularly important because of its proximity to the site and the fact that the owners of TimBer Landing also want to produce grape wine. Scheuermann is owned by a local family who wanted to share their love and interest in wine with the community. Scheuermann's connection to the community makes it different from other vineyards. The annual harvest involves community volunteers, friends, and family to tend to the 6.3 acres of vineyard. Harvesting the grapes must be done at a particular time of the year to produce the best quality wine, and the volunteering efforts go a long way, adding to the winery experience. This example of agritourism is a passive experience, where the main attraction is exploring the vineyard, sampling the wine or enjoying food from their outdoor restaurant during the summer months.



Figure 10. Pressed wine grape used to help nurish next years growth, Westport, Ontario

Black Fox Distillery is located outside of Saskatoon City in Saskatchewan. This precedent has been visited on multiple occasions at different times of the year, with each occurrence bringing a new experience. The family-owned business started with the distillery, and as Black Fox grew, winning many awards for its whiskey and gin, it continues to promote agritourism and agriculture of the region. While the main attraction is touring the distillery and sampling, Black Fox Distillery has diversified its offerings from flowering and pumpkin picking to hosting special annual events. One of these events is a gladiola festival, where the public is invited to view and pick the gladiola blooms in late summer, or the pumpkin drop, an opening ceremony to open the pumpkin patch in the fall where they drop large pumpkins hoisted meters in the air. The experience can be passive, through sampling and learning, or active, through flower or pumpkin picking.

As shown in Figure 11, the distribution of agritourism in the provinces significantly impacts Canadian tourism, especially in the prairies and Ontario. Moreover, Ontario agritourism is expected to continue growing, as outlined by Crispin Colvin, Vice President of the Ontario Federation of Agriculture.¹ The three precedents explored all offer something different and concepts unique to their location that can help generate strategies of how TimBer Landing could be transformed into an agritourist destination. All three precedents involve the local community in one form or another, emphasizing the importance of agritourism function relating to rural communities and creating opportunities to share culture, traditions, and lifestyle. This brief section also introduces the notion of agritourism involvement. Will TimBer Landing be for passive relaxation or a more active adventure, such as working the fields, or a combination of both?

1 Crispin Colvin. 2023.

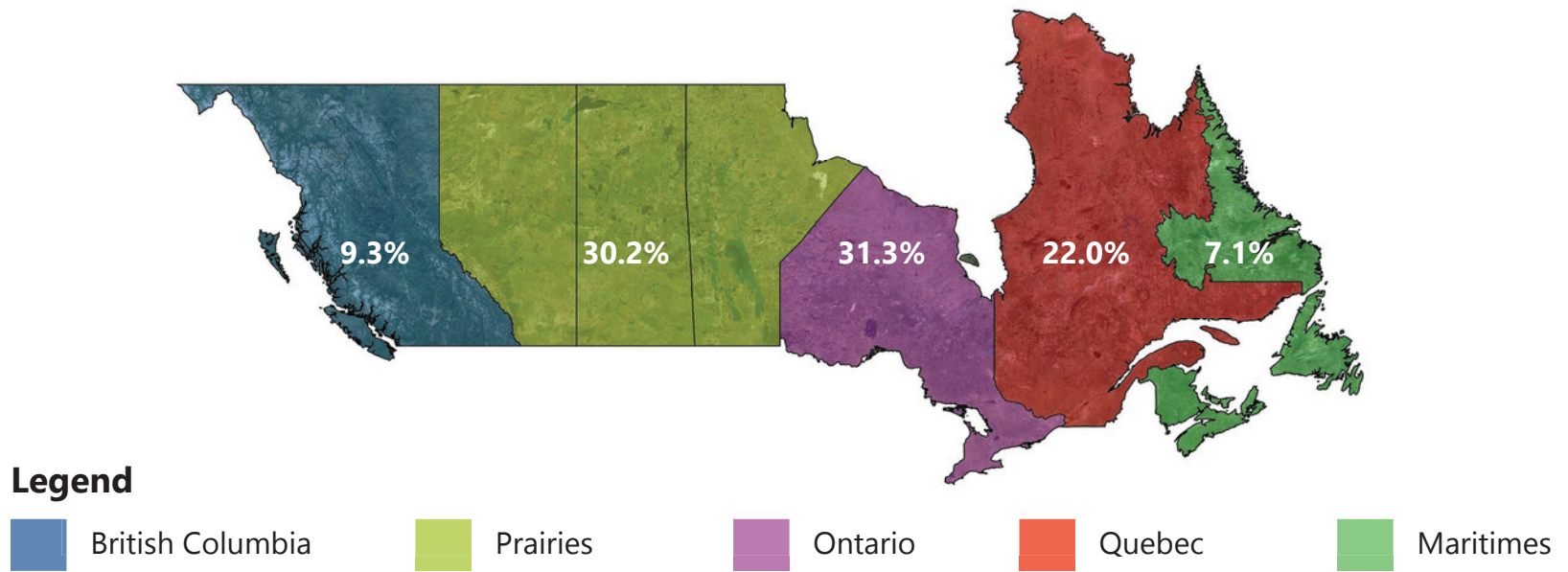


Figure 11. Percentage of agritourism distribution across Canada's Provinces (Haley Bilokraly. 2023.)



Figure 12. Maple tapping system, Île d'Orléans, Quebec

Case Studies Conclusion

The three precedents explored are strong examples of how a site can be cultivated and operated for agritourism. Outlined by the three functions of agritourism (socio-psychological, economic, and environmental) and comparing all three precedents, five key aspects can be isolated, akin to each precedent's success and operations. **Community:** A successful agritourist entity engages the community of its local area, bringing people and opportunities to learn and grow personally and professionally. **Activities:** One of the best ways to get people interested in agritourism is inviting visitors to participate in the harvest/creation of goods and produce, making the tasting portion more experiential. **Integrated Landscape:** An agritourism destination is much more successful if the surrounding landscape is attractive and visitors can roam freely and take in the scenery. **Sharing Knowledge:** An agritourist activity is much more enjoyable for all when the owner/workers are enthusiastic about sharing their knowledge with visitors and having the opportunity to teach them something new. **Accessibility:** The agritourism experience must be flexible, providing opportunities for engagement for a range of ages, abilities and interests.



Figure 13. Orchard near Saint-Jean, Île d'Orléans, Quebec



Figure 14. Sustainable farming for many locals in Pulangui, Albay, Philippines, is a way of life; these women harvest and process wild cocoa beans to sell to local chocolatiers

2.1 Sustainable Tourism Literary Review

In recent years, more and more tourism regions and attraction along with their respective governing bodies have made sustainability a major aspect in attracting visitors. In agritourism, however, sustainable practices has always been at the forefront of their existence. This section outlines the roles of sustainability concerning agritourism.



Figure 15. Scheuermann Vineyard, Westport, Ontario

Sustainability In Agritourism

Sustainability is becoming a standard expectation in many forms of tourism as a way to attract more visitors. It has become a blanket statement linked to climate change and the resilience of our ecosystems and natural processes. What does sustainability mean in the context of this practicum and the topic of agritourism? How can the word be more than good intentions? Sustainability is interwoven into agritourism, and there is substance to its meaning beyond the typical connotations. In this section, we will examine sustainability as it is translated into the realms of agritourism through understanding how it can operate, what it means for the people and communities participating in agritourism, and how it affects conservation and protection efforts.

Agritourism often develops due to low farm income, necessitating families to open their farms for tourism activities and lodging.¹ For the first pioneers of agritourism, it was a means to sustain their livelihood for reasons such as failed crops. However, as agritourism developed and diversified, this correlation became isolated, though still important for many small farms. As the popularity of

agritourism increases, especially in European countries like Italy, it has prompted the government to seize the opportunity to make it mainstream, calling it a sustainable model for tourism.² According to Grillini, one way an agritourist entity can be sustainable is by preserving cultural and traditional means of farming and cultivating traditional crops of the region.³ In turn, cultivating traditional crops could support other local businesses that rely on the crop rather than planting cash crops. The diversification of agritourism activities through the ongoing creation of new initiatives to adapt to changing circumstances is another way sustainable agritourism operates.⁴ Adapting to the evolving circumstances creates increased job opportunities and more options for visitors, increasing the likelihood that visitors will return to experience something new. The downside is that if the agritourist entity is not careful, the entire experience can become gimmicky, and far removed from true agritourism, and akin to greenwashing.

1 Sznajder, Michal. et al. 2009. p. 15.

2 Grillini, G. et al. 2023. p. 1.

3 Grillini, G. et al. 2023. p. 2-3.

4 Barbieri, C. 2013. p. 254.

Sustainability Continued

It is important to note that aspects of sustainable agritourism are interconnected, and its meaning can take form in many ways. For example, agritourism entities that generate new jobs are contributing to the sustainability and stability of rural communities, given that the trend of young people moving to cities is increasing the abandonment of older homes and parcels of land.¹ In addition, the example of the agritourism entity operating to preserve farming tradition helps sustain the cultural importance of the region and gives social opportunities like sharing knowledge and experiences. In the Philippines, sustainable agritourism is embodied by individuals and communities as a cultural bridge that fosters connections between locals and visitors through cultural exchange, preservation of heritage, celebration of local cuisine, events, educational initiatives, and craftsmanship.² For many Filipinos, sustainable agritourism is more than a sustainable economic future; it is also a way of life and the opportunity to be proud and passionate about their home.

According to Lane, as referenced by Barbieri, sustainable agritourism fully considers preserving rural landscapes and natural habits because we depend on natural processes and intricacies to help cultivate and pollinate our fields.³ Part of what separates other forms of tourism from sustainable agritourism is the rural landscape and the quantity and quality of ecosystem services enhance through agritourism practices. Preserving and protecting rural landscapes are a critical and ongoing aspect of a successful sustainable agritourism entity.

A sustainable agritourism entity, however, is about more than simply protecting the environment; it is also about sustaining cultural, traditional and economic nuances and the opportunities to share experiences and passion for agricultural activities. Sustainable agritourism must work within the limitations of the natural environment so as not to negatively affect its processes. There is some overlap in some of the topics covered, but it is a given considering how the aspects of agritourism are connected. Through this exercise, we can understand what sustainability means in agritourism.

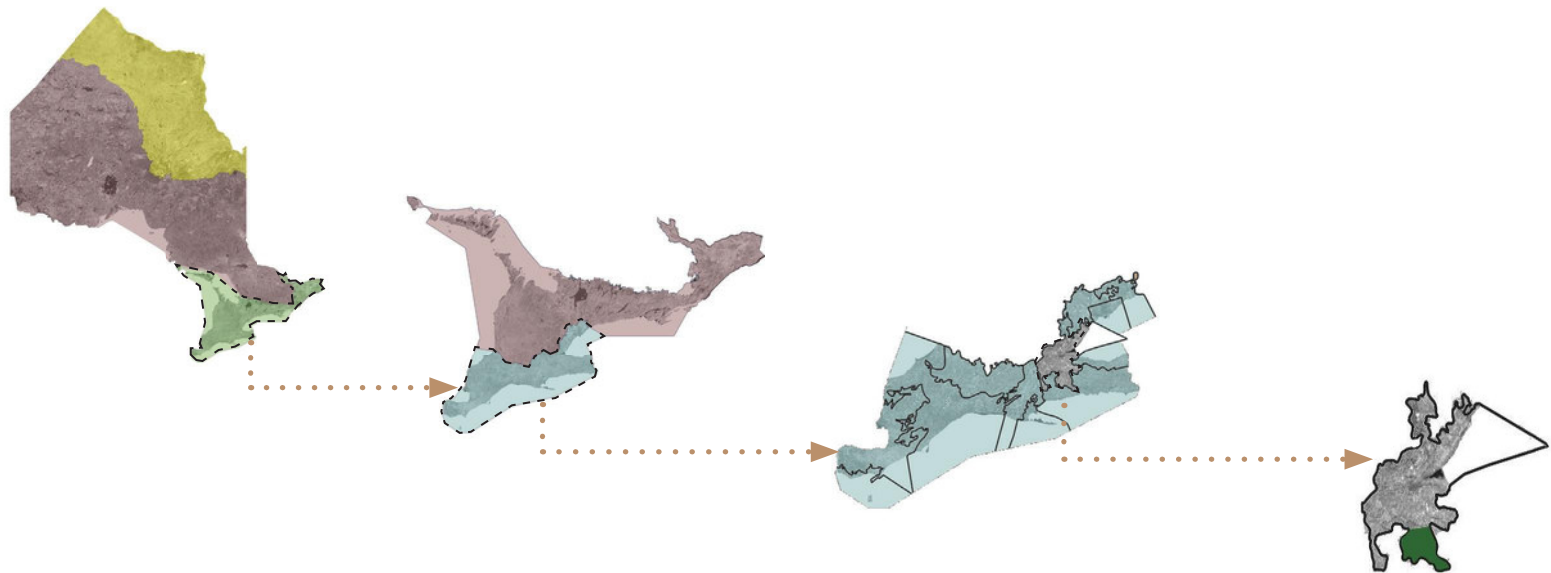
1 Adamov, T. et al. 2020. p. 3.

2 Alar, S. S. 2024. p. 63.

3 Barbieri, C. 2013. p. 256.



Figure 16. Permaculture garden in Pulangui, Albay, Philippines.



Ecozone

- 1,000,000s to 100,000s km²
- Latitudinal patterns in energy and seasonality
- continental climatic patterns
- major bedrock
- Physiographic domains
- 3 ecozone defined for Ontario

Ecoregion

- 100,000s km²
- Sub-continental climatic regimes
- Bedrock geology
- 14 ecoregion have been described for Ontario

Ecodistrict

- 100,000s km² to 1,000s km²
- Patterns of relief
- Geology
- Geomorphology
- Substrate parent material
- 71 ecodistrict have been described for Ontario

Ecosection

- 1,000s km² to 100s ha
- Landform
- Surface material
- Hydrological factors
- Vegetation

Figure 17. Ontario's ELC Hierarchy (Crins, WilliamJ., paul A. Gray, Peter W.C. Uhlig, and Monique C. Wester. 2009. p. 61.)

CHAPTER 3 - REGIONAL ANALYSIS

3.0 Ecological Land Classification System

The land, water, and atmosphere all create the ecosphere. The ecosphere is essentially the Earth's largest ecosystem. It is made up of countless smaller, unique ecosystems. These ecosystems are incredibly complex, and they involve a whole range of different living and non-living components. Ecosystems exist at various scales and are classified using Ecological Land Classification (ELC) system, allowing for better understanding, inventory, communication, and management of these ecosystems.¹

¹ Crins, William J., Paul A. Gray, Peter W.C. Uhlig, and Monique C. Wester. 2009. p. 1-2.



Figure 18. TimBer Landing depicting existing conditions along the shoreline



Preamble

Figure 18 shows a glimpse of TimBer Landings, the site and the focus of the practicum. As defined in the chapter title, this section will explore the various site factors that make up TimBer Landing at different scales by first zooming out to the Eco Region, Eco Section, and finally to the Eco Site. Understanding the broader area before focusing on the specific site context is crucial in the design process. Because the site is adjacent to a protected lake, certain restrictions will limit the amount and type of development along its shore. This knowledge can inform decisions about the design's scale, orientation, and overall approach so that it fits appropriately into the existing context at all scales and meets the landowner's needs. Studying the different scales better explain why a new agritourist entity on the site works, how it can enhance tourism in the region, and give a glimpse into viability. The site is in a prime location due to its proximity to the Canada/US border and large urban developments such as The Greater Toronto Area, Kingston Ontario, Ottawa Ontario, Montreal Quebec. Additionally landscape is serene and offers access to Devils Lake allowing for opportunities to explore the area by land or water.

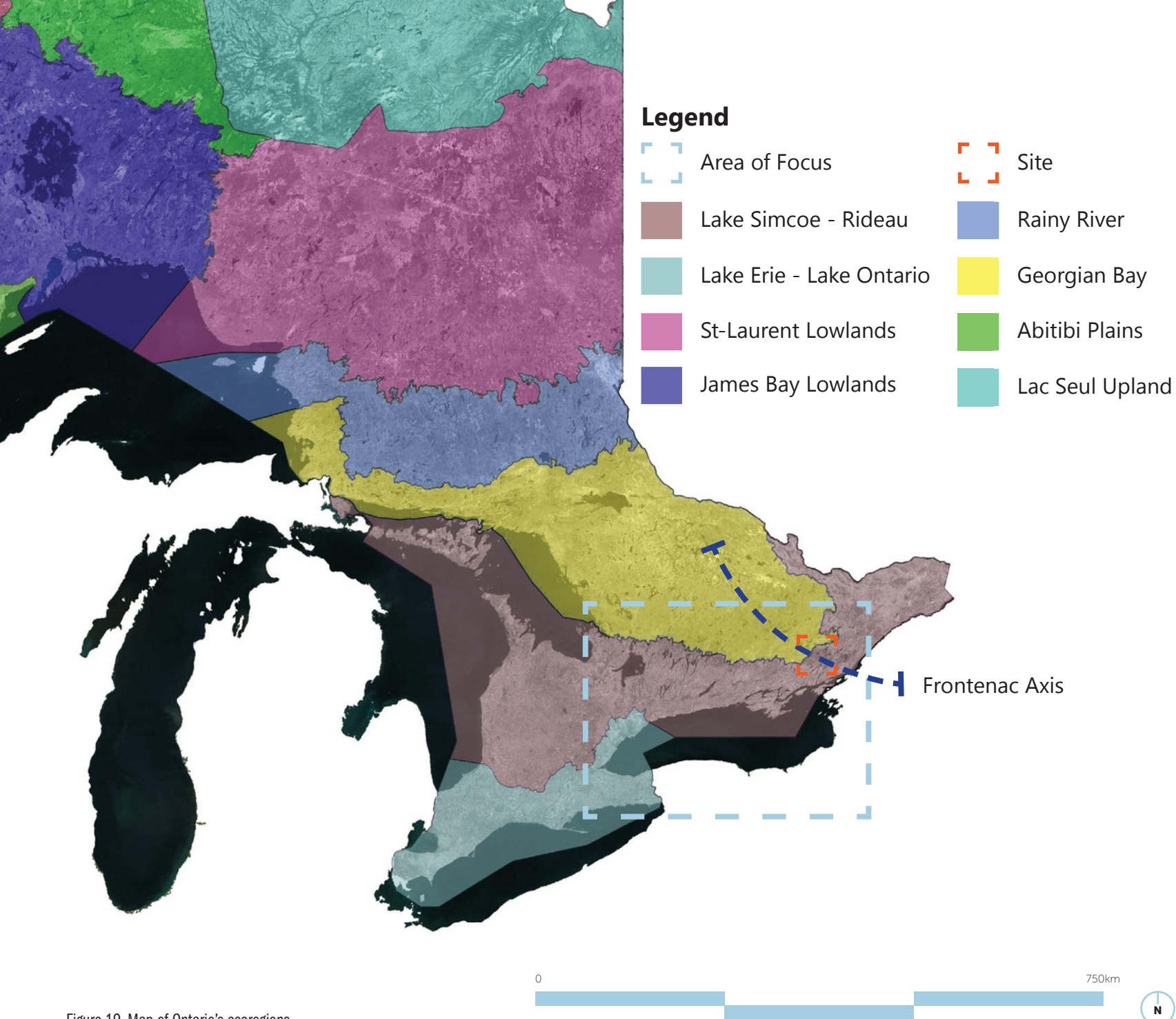


Figure 19. Map of Ontario's ecoregions

3.1 Ecoregion

Data collected at this level of the ELC is typically used at the provincial level for strategic multi-agency monitoring and planning of parks and protected areas, interprovincial communication, determining patterns of distribution and abundance, disturbance and succession, and primary productivity.¹ It is important to note that delineating each ecoregion's boundaries is complex due to ecosystems' nature, dynamics, processes, interconnectedness and landscape modification from human activities such as land use and urbanization.² Unlike the ecozone, ecoregion boundaries can shift much more quickly as new knowledge is obtained, major climatic disturbances such as global warming occur, and from political and stakeholder actions. A critical observation at this stage is noting how TimBer Landing sits at the edge of two ecoregions.

1 Crins, William J., Paul A. Gray, Peter W.C. Uhlig, and Monique C. Wester. 2009, p. 61.

2 Government of Canada, 2013.

Typically, the borders of one distinct ecological area to another have high levels of biodiversity because they provide adequate spaces for species of both ecosystems and chances to interact as long as the border location is inherently natural and stable, meaning very little to no human interventions. The landscapes also tend to be more dramatic at the edges of ecoregions, especially when we compare the rugged Georgian Bay to the gentle yet undulating terrains of the Lake Simcoe-Rideau ecoregion. Although these two ecoregions are categorized differently, they share one unique quality found in the ground that runs through the site from Adirondack Mt. and northwest toward Algonquin Provincial Park (Figure 25/26). The bedrock geology of this arch formation is known as the Frontenac Axis; it consists of the bedrock of the Precambrian shield, Ordovician limestone, and dolostone.¹

1 Crins, William J., Paul A. Gray, Peter W.C. Uhlig, and Monique C. Wester. 2009, p. 42.

Southeastern Ontario

As we can see in Figure 20, the site sits at the border of one ecoregion which is within less than 10km from another, and the delineation of these ecoregions is not static; therefore, we can extrapolate that the site is shaped by characteristics of both the Georgian Bay and Lake Simcoe-Rideau ecoregion. The following data focuses on characteristics the two ecoregions share to focus on how the two ecoregions influence the site. Take the example of the types of disturbances in the ecoregions. Fire cycles in the Lake Simcoe-Rideau ecoregion are not a significant factor due to fire suppression efforts and changes in land use.¹ The areas unaffected by the monotony of the agricultural landscape tend to be mixwood forests, a dominant land cover in the Georgina Bay ecoregion with fire regimes between 70 to 200 years or shorter and with more coniferous content.² Another similarity is the makeup of the substrates in particular areas of the Lake Simcoe-Rideau ecoregion. More than 59% of the total substrate in the Georgian Bay ecoregion is made up of Humo-ferric Podzols, which is a thin layer of less organic soils that is strongly acidic and also makes up 5% of Lake Simcoe-Rideau substrate.³ Humo-ferric Podzols soils are commonly found in coniferous or mixed wood forests.

1 Crins, William J., Paul A. Gray, Peter W.C. Uhlig, and Monique C. Wester. 2009, p. 48.
2 Crins, William J., Paul A. Gray, Peter W.C. Uhlig, and Monique C. Wester. 2009, p. 40.
3 Government of Canada. 2013. National Ecological Framework.

This next section will discuss the introduction and importance of the next level of ELC, ecodistricts, in relation to an area known as the Frontenac Arch Biosphere Reserve (See Figure 21). The Simcoe-Rideau ecoregion is broken up into 17 ecodistricts. The Charleston Lake ecodistrict is situated in the southeastern part of Ontario, outlined within the boundary of the Frontenac Arch Biosphere Reserve. The landscapes of the Charleston Lake ecodistrict are breathtaking and unique in the region because of its geology. The average visitor will find it hard to imagine that what we see today is the roots of a mountain belt created 1.8 to 2.5 billion years ago.¹ Due to the abundance and diversity of flora, fauna, and pristine conditions of habitats in the ecodistrict, the Frontenac Arch Biosphere was established by the local conservation community alongside residents to raise awareness and protect the land.² The boundary of the Frontenac Arch is determined by the ecoregion's extent and areas that are too difficult to convert to agricultural land. The ecological importance of the Frontenac Arch goes beyond the ecodistrict, even beyond the ecoregion. It is a critical green infrastructure that links the migration of flora and fauna of the Algonquin Provincial Park and the Adirondack Park regions.

1 Frontenac Arch Biosphere. 2022. Natural History.
2 Frontenac Arch Biosphere. 2023. People and Nature In Balance.

Legend

	Site		Provincial Parks		Georgian Bay
	Frontenac Biosphere		Lake + River System		Lake Simcoe - Rideau
	Ecodistrict		Ontario Road System		Lake Erie - Lake Ontario

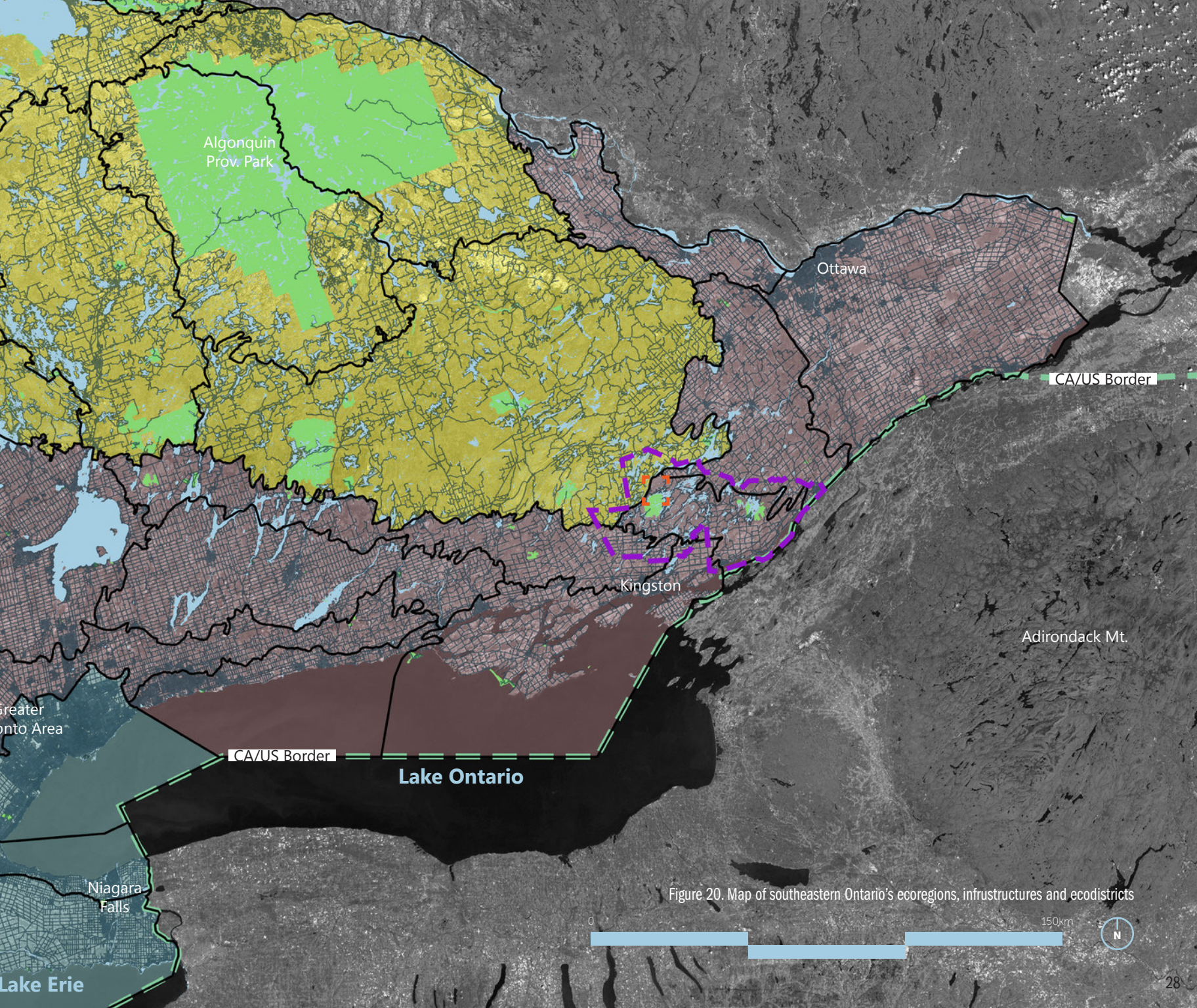
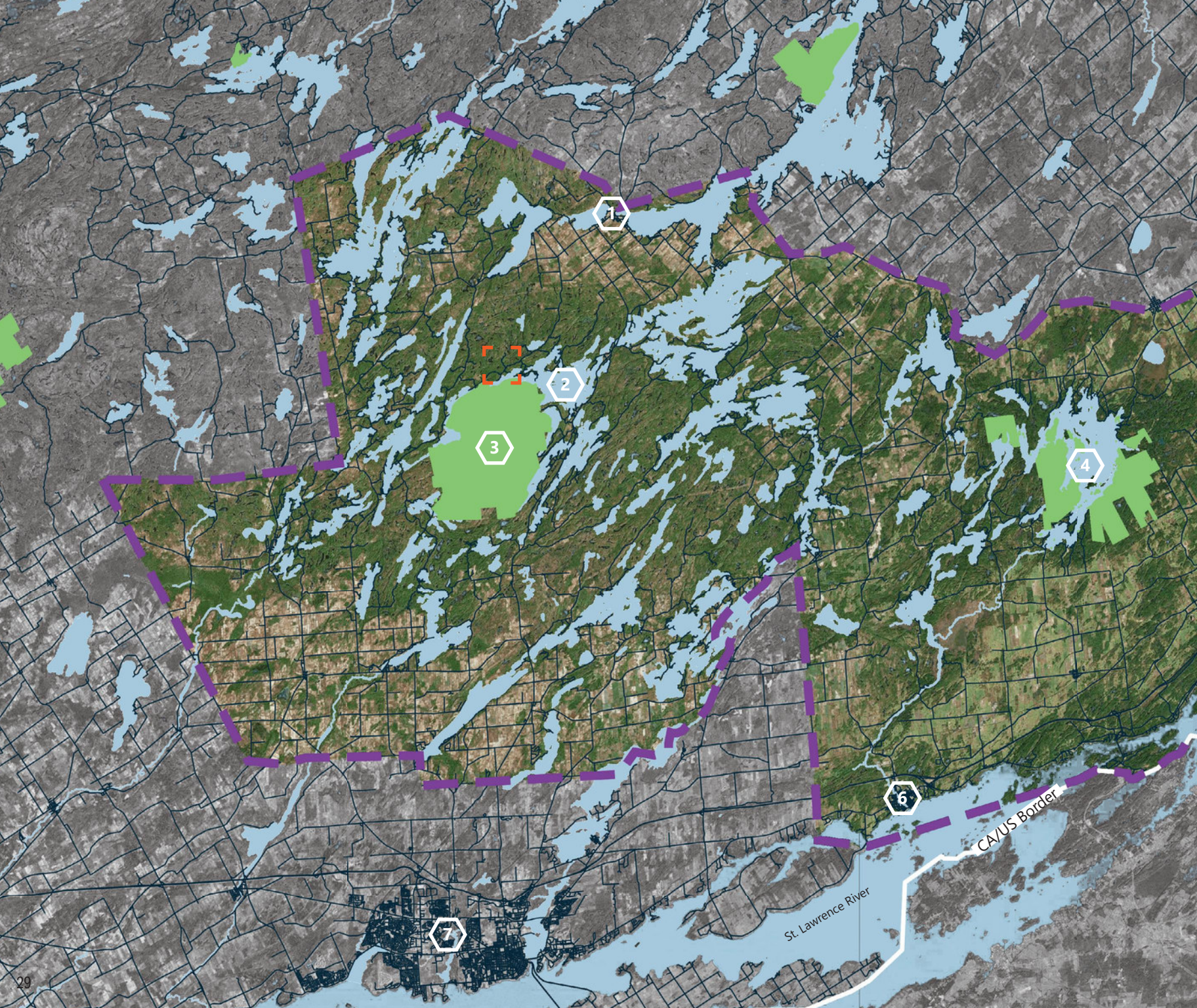


Figure 20. Map of southeastern Ontario's ecoregions, infrastructures and ecodistricts



1

2

3

4

5

6

7

CAUS Border

St. Lawrence River

3.2 Frontenac Arch Biosphere Reserve

We will consider the Frontenac Arch Biosphere Reserve equal to the Charleston Lake ecodistrict to avoid confusion and repetition since its boundaries are encompassed within the reserve. It is important to make this distinction early on because the classification of the focused area as an ecodistrict is less indicative or of such great importance than if it was referred to as the Frontenac Arch Biosphere Reserve (FABR). The FABR is a corridor of forests, wetlands, and lakes. It is home to thousands of aquatic and terrestrial species covering over 270,000 hectares with an incredibly rich natural environment and history which was recognized globally in 2002 when it was designated as a UNESCO World Biosphere Reserve, one of a worldwide network of 701 in 124 countries.¹ The distinction of a World Biosphere Reserve is a difficult achievement. It "aims to establish a scientific basis for enhancing the relationship between people and their environments combining the natural and social sciences with a view to improving human livelihoods and safeguarding natural and managed ecosystems, thus promoting innovative approaches to economic development that are socially and culturally appropriate and environmentally sustainable".² The success of the FABR over the last 22 years is thanks to the stewardship of and continued efforts by local leaders and the Frontenac Arch Biosphere Network to promote sustainable development of the ecodistrict through education and best practices because, despite what the name suggests, it is not a fully protected area.³

1 Nature Conservancy of Canada. 2023. Frontenac Arch.

2 UNESCO. 2023. MAB.

3 Frontenac Arch Biosphere. 2023. About Us.

Legend



Site



Frontenac Biosphere



Lake + River System



Provincial Parks



Ontario Road System

1 - Village of Westport

2 - Devil Lake

3 - Frontenac Prov. Park

4 - Charleston Lake Prov. Park

5 - Brockville City

6 - Town of Gananoque

7 - Kensington City

Figure 21. Map of the Frontenac Arch Biosphere Reserve



Ecodistrict Characteristics

It is outstanding how much the landscape of FABR has diversified and contributed to some of the highest concentrations of biodiversity with such a small footprint compared to some of the largest national and provincial parks scattered throughout the country. Between the lowest elevation of about 70 meters above sea level along the St. Lawrence River and a maximum elevation of 208 meters above sea level west of Devil Lake, combined with the undulating topography and the climate regulating effects of the Great Lakes has aided in creating microclimate capable of sustaining a variety of plants and animal species.¹ The ecoregion's climate can be described as warm summers and cold winters with moderate precipitation levels annually.

1 Wester, M.C., B.L. henson, W.J. Crins, P.W.C. Uhlig and P.A. Gray. 2018. p. 353-355.

More specifically, the mean summer temperature is about 16 degrees Celcius and -7 degrees Celcius in the winter, giving an average annual temperature of 4.5 degrees Celcius.¹ The district experiences about 765mm to 1,110mm of annual precipitation, with the summer months being 201mm to 292mm and a total of 190 to 224 days of growing season.² I would argue that these conditions and efforts of the Frontenac Arch Biosphere Network have been favourable for establishing plant life, as noted in a study of woody plant encroachment on the Frontenac Arch increased by 22.5% over the last century.³

1 Wiken, E.B. n.d.
2 Crins, William J., Paul A. Gray, Peter W.C. Uhlig, and Monique C. Wester. 2009, p. 40,50.
3 Cohen, M. & Danby, R.K. 2023

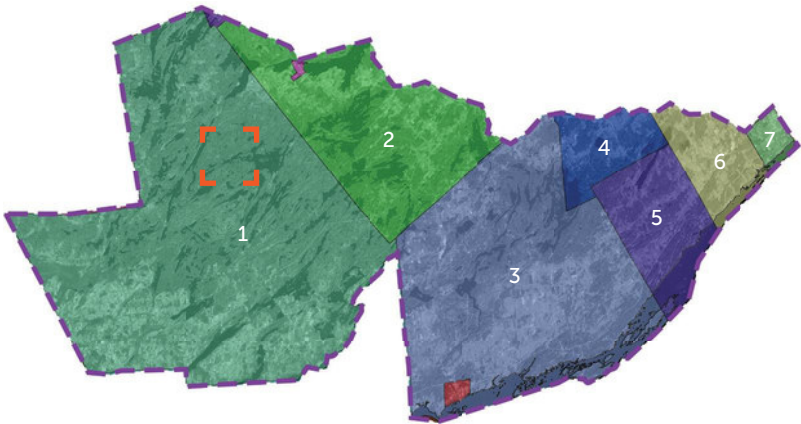


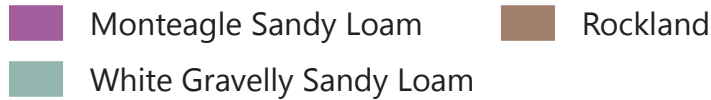
Figure 22. Frontenac Arch Biosphere Reserve township map

TOWNSHIP

- | | |
|---------------------------|----------------------|
| 1 South Frontenac | 4 Athens |
| 2 Rideau Lakes | 5 Front of Yonge |
| 3 Leeds & Thousand Island | 6 Elizabeth - Kitley |
| | 7 City of Brockville |

As shown in Figure 22, there are many stakeholders within the ecodistrict, all of whom are at different stages of development and have different views regarding development opportunities, conservation efforts, zoning bylaws, etc. Other stakeholders, such as the Federal and Provincial governments, various conservation groups, and landowners, must all be rallied to have the same approach to future development and management. It illustrates that attaining and maintaining the status of a Biosphere Reserve is a challenging feat.

SOIL COMPLEX



The origin of soils in this ecodistrict have been deposited through moraine (86%) and glaciolacustrine (13%) but were gradually stripped away and concentrated into shallow bays due to the waves of glacial lakes, and what remains is a thin layer of soil types classified under Humo-Ferric Podzol covering 78% of the ecodistrict.¹ The soil complex in and around the site consists of deeper soil material originally developed under mixed and deciduous forests, with rock outcrops occupying less than 25%.²

1 Wester, M.C., B.L. henson, W.J. Crins, P.W.C. Uhlig and P.A. Gray. 2018. p. 354.

2 J. E. Gillespie, R. E. Wicklund, and B. C. Matthews. 1966.

LAND USE



The majority of the land cover of the FABR is primarily woodlands, consisting of 18% mixed forest and 44% deciduous forest, 14% as other natural features like lakes and 24% pastures/croplands with a mere 5.7% of the ecodistrict designated as protected areas.¹ Aside from Kingston and Brockville at the ecodistrict's boundary, settlements are limited to scattered small communities of resource-based extraction activities such as hydroelectric generation, mining, and aggregates extraction with approximately a total of 18,500 people.²

1 Wester, M.C., B.L. henson, W.J. Crins, P.W.C. Uhlig and P.A. Gray. 2018. p. 354-356.

2 Wiken, E.B. n.d.

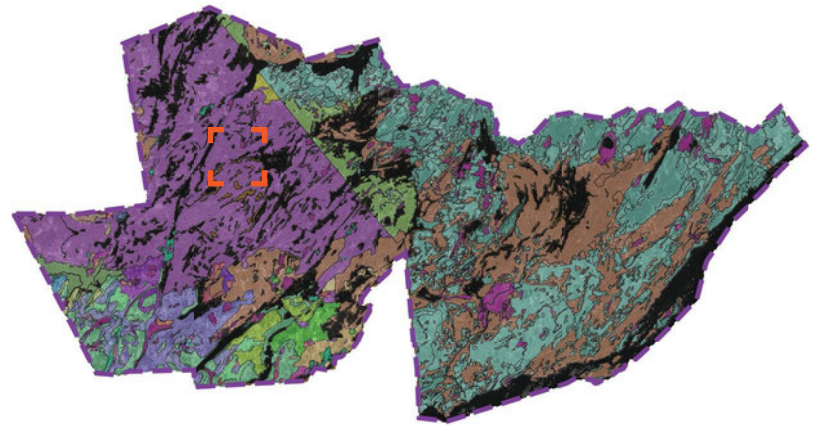


Figure 23. Frontenac Arch Biosphere Reserve soil complex map

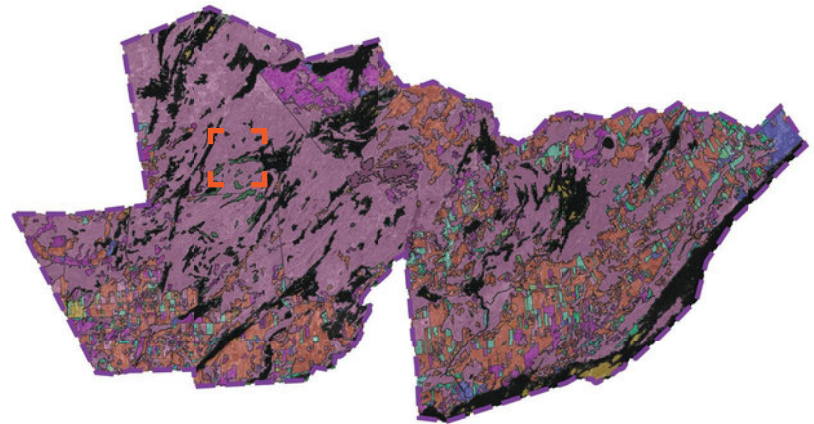
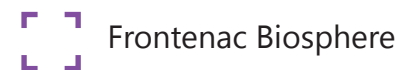


Figure 24. Frontenac Arch Biosphere land use map

Legend



3.3 Conclusion

In applying the ELC system as a method for contextual analysis concerning TimBer Landing, we can highlight some key findings that will aid in the development and justifications for the proposed site design. The key-take aways will be categorized and used as the basis for the site-specific context analysis. The categories will be as follows: climate, geology and substrate, topography, land cover, biodiversity, conservation, and socio-economic opportunities.

CLIMATE

- The climate of southeastern Ontario allows for some of the best growing areas in Canada.
- Southern Ontario has roughly 65% more days (225 Days) in its growing season than Western Canada.
- Proximity to the Great Lakes is a huge factor in precipitation, leading to more annual rainfall than Ontario's northern half.

TOPOGRAPHY

- The events of the last ice age and the existence of the Precambrian Shield in the region have created undulating landscapes with many lakes and small river systems.
- The watershed of the ecoregion drains towards the south and into the St. Lawrence River, which terminates in the Atlantic Ocean.

BIODIVERSITY

- Despite the ecoregion having some of the highest levels of biodiversity in Canada, it also has a large percentage of critically endangered terrestrial and aquatic animals.
- The undulating landscapes provided sizeable areas of microclimate environments hosting plant life outside the typical hardiness zones.

GEOLOGY + SUBSTRATE

- The unique formation of the region's foundation has created many beautiful landscapes.
- Fertile soils for agriculture are found in lowlands or areas adjacent to significant bodies of water.
- The overall substrate of the region outside of existing agricultural zones is adapted for deciduous and mixed forests.

LAND COVER

- Agriculture is a major industry and the number one reason for the dramatic transformation of southern Ontario wetlands.
- Mining and forestry are important industries for small communities throughout the Ontario Shield ecoregion.
- 62% of the land cover of the FABR consists of mixed and deciduous forests.
- Forest fires are key to the life cycle and maintenance of forests in the region, outside of human-caused disturbances from industries and developments.



Figure 25. Frontenac Arch Biosphere Network commitments (Frontenac Arch Biosphere. 2023. About Us.)

CONSERVATION & SOCIO-ECONOMIC OPPORTUNITIES

- At the beginning of this document, certain values and themes about agricultural landscapes were discussed through a personal lens with the hope that they would positively influence the methodology and outcome of the proposed design. Interestingly, some of these values are echoed by the administrative body of the Biosphere Reserve, the Frontenac Arch Biosphere Network. Because we are working within the FABR, the following points and statements below can be used as a guiding principle and approach when discussing conservation and socio-economic opportunities for TimBer Landing.



Figure 26. Aerial photo of the main clearings of TimBer Landing

CHAPTER 4 - SITE ANALYSIS

Preamble

HOOTIE HOO, HOOTIE HOO, HOOTIE HOO!!!¹

Welcome to TimBer Landing, an unassuming stretch of land along the western part of Devil Lake and north of Frontenac Provincial Park. Its beauty and serenity are akin to the forest, lake, topography, outcrops, and moss-like carpet that invites your bare feet to experience its softness. Its newest owners are excited to awaken the landscape to its fullest potential as an agritourism endeavour.

¹ A slang the Upton family commonly recite when friends and relatives visits TimBer Landing.

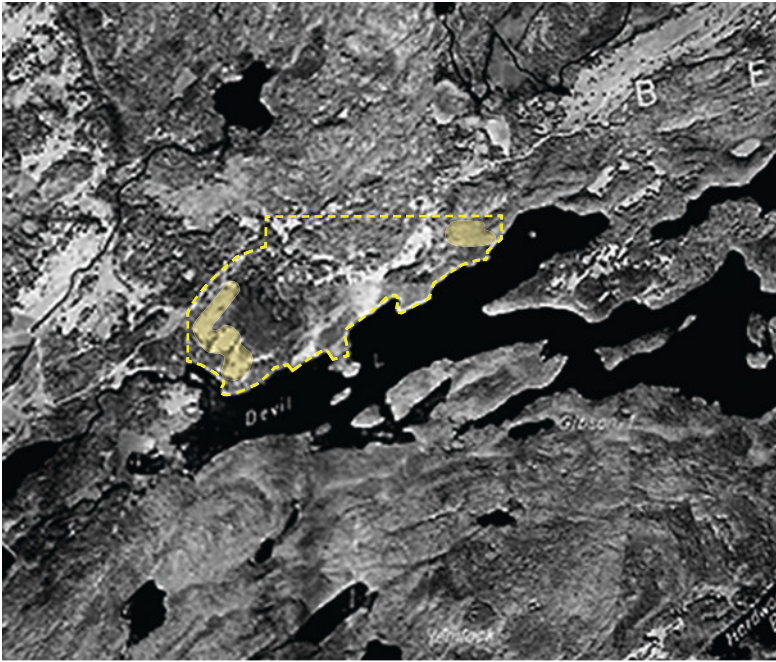


Figure 27. Satellite image of the site and its surrounding dating back to 1954
*(University of Toronto. 2024.)

4.0 Site History

When we compare Figure 27, a 1954 satellite image, with Figure 28, a contemporary satellite image, we can see that sections of the land have been cleared. According to Tim and Beryle, these areas were pastures for many years. As shown on the 1954 satellite, we see three fields of various sizes west of the site and one large field east of the south from the road to the edge of the lake.

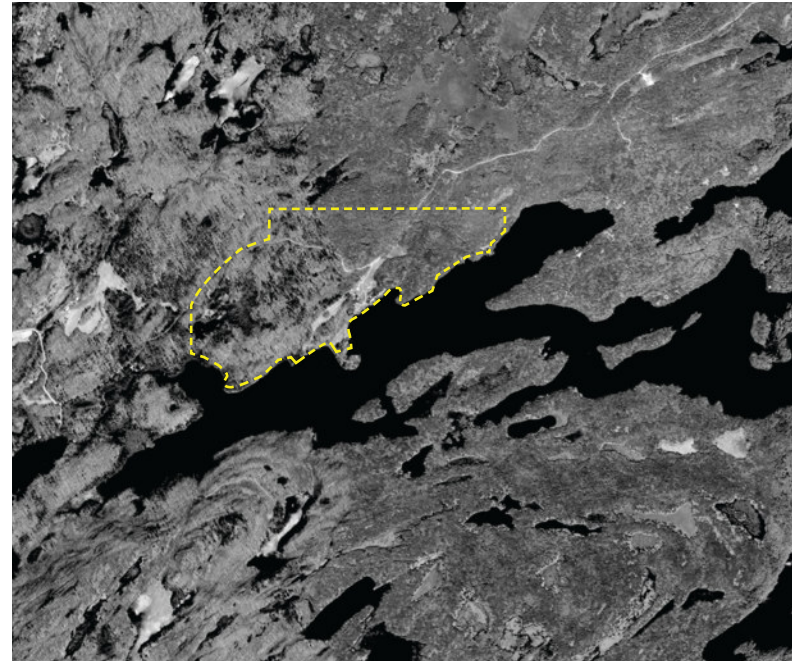


Figure 28. Contemporary satellite image of TimBer Landing and the surrounding area

During the site visit, remnants of the old pastures that the forest has since reclaimed were still visible. In the eastern part of TimBer Landing, you can still see series of makeshift fence of stacked boulders from clearing the area. For 70 years, one family over three generations owned the land. When the pastures were no longer utilized, the site became a small trailer park supplemented with camping and cabins.



Figure 29. Taken in the eastern part of the site where the trees have taken over the pastures and the remnant of the stack boulders are still visible

4.1 Existing Infrastructures & Site Features

Infrastructure: Currently there are 11 structures on site consisting of three storage buildings, a communal shower building, five cabins, a bungalow, and a boat house. The site can be accessed through gravel roads from the south and north that service cottages and the northern entrance of Frontenac Provincial Park, as well as by boats from boat launches along the eastern parts of the lake. **Accessible Lake Edge:** These areas can be rocky or muddy and filled with driftwood, yet they have some of the best views at sunset and unique coniferous understory qualities. The ground is bouncy from the build-up of conifer needles, and the die-back perfectly frames the view into the lake of clear shallow waters. **Beaver Pond:** The dams are located at the southwestern tip on the pond, with some reaching a staggering height of 6 to 7 feet. The eastern part of the pond features a dendritic creek, the main water source for the pond, littered with dead trees, an eerie yet beautiful sight. **Sand Pit:** The previous owner excavated the area to extract as much sand as possible so they could create artificial beach conditions along the shoreline. However, evidence shows that the local turtle population utilizes the sandy soil complex in this area to lay eggs. **Lawn:** The lawn represents 4.75% of the site's total land cover and equals 11.5 acres. Although this might be a decent amount of useable land, due to zoning bylaws and to avoid tree removals, only 3.5 acres can be developed for agriculture.



Figure 30. View of the existing structures on site

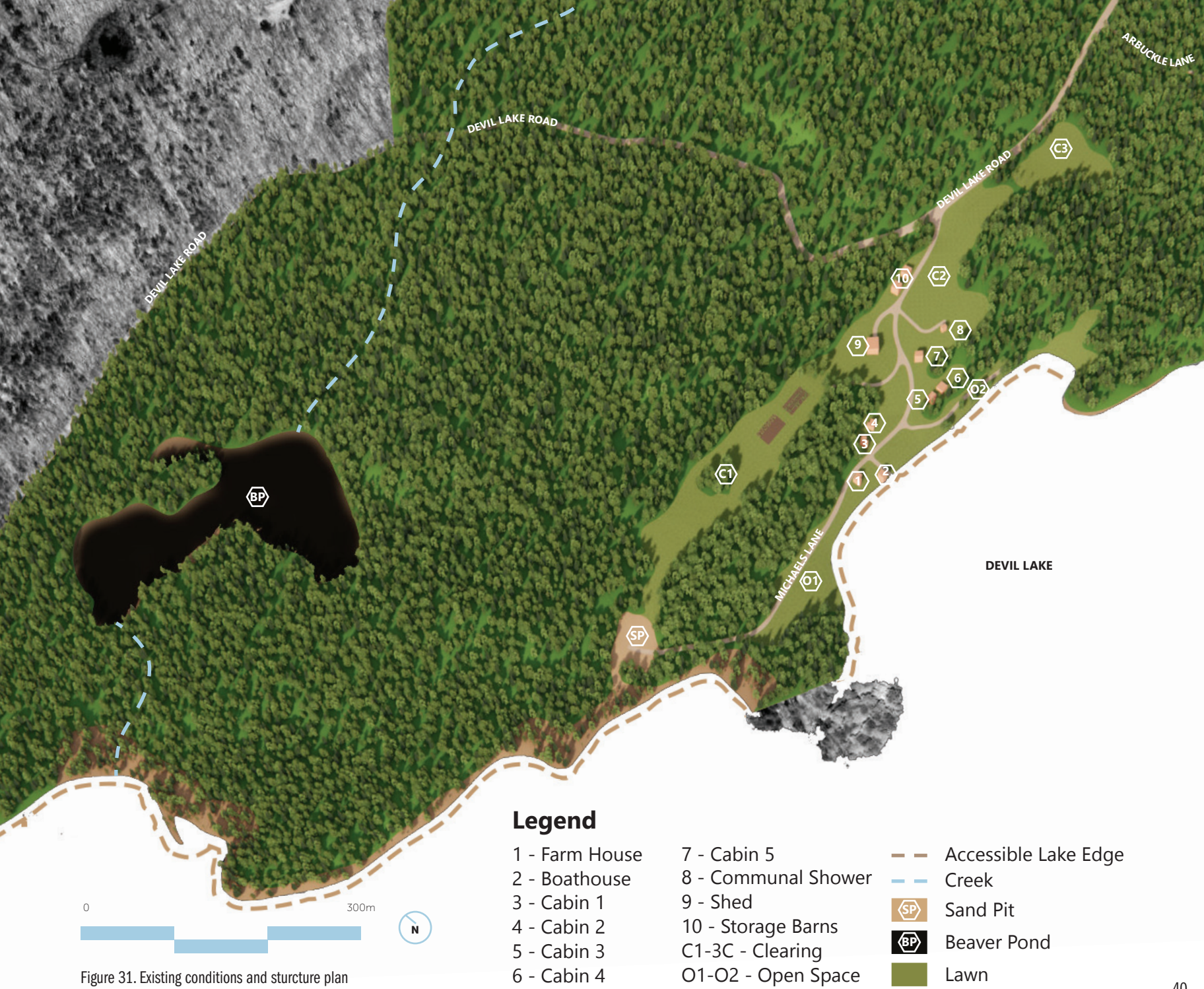
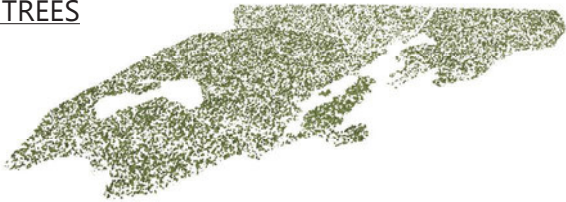


Figure 31. Existing conditions and sturcture plan

4.2 Forest Strata

FOREST TREES



FOREST UNDERSTORY



Figure 32. Axonometric diagram of TimBer Landing site layers

- ▶ The forest in and around TimBer Landing consists of mixed forests with a concentration of coniferous trees adjacent to Devil Lake. The site's eastern half notably has more maple species, such as sugar maple, silver maple, and red maple. The other tree species on the site include American beech, white, green, and black ash, yellow birch, white elm, northern red oak, tamarack, eastern hemlock, eastern white cedar, eastern white and red pine, balsam fir, and black spruce. There are two areas with many dead or dying trees, around the beaver pond and a patch of deciduous trees in the northeastern part, as indicated by the abundance of understory growth, which is only possible with access to more sunlight.
- ▶ The understory conditions consist of herbaceous plants such as ferns, a range of ground cover from rocky soils to loamy soils, shrubs, moss, deadwood, and calliper tree saplings below three inches and twelve to fifteen feet tall, which can be found throughout the site. The number of young trees indicates the forest is in a stage of natural rejuvenation.
- ▶ Regarding the ELC system, TimBer Landing is large enough to be considered an ecosection, the fourth level focusing on landforms, surface material, hydrological factors, and vegetation. The clearings within the site will be considered the ecosite, the next ELC level, and where most of the proposed intervention will occur, which is the natural choice as this minimizes disturbance to the forest.

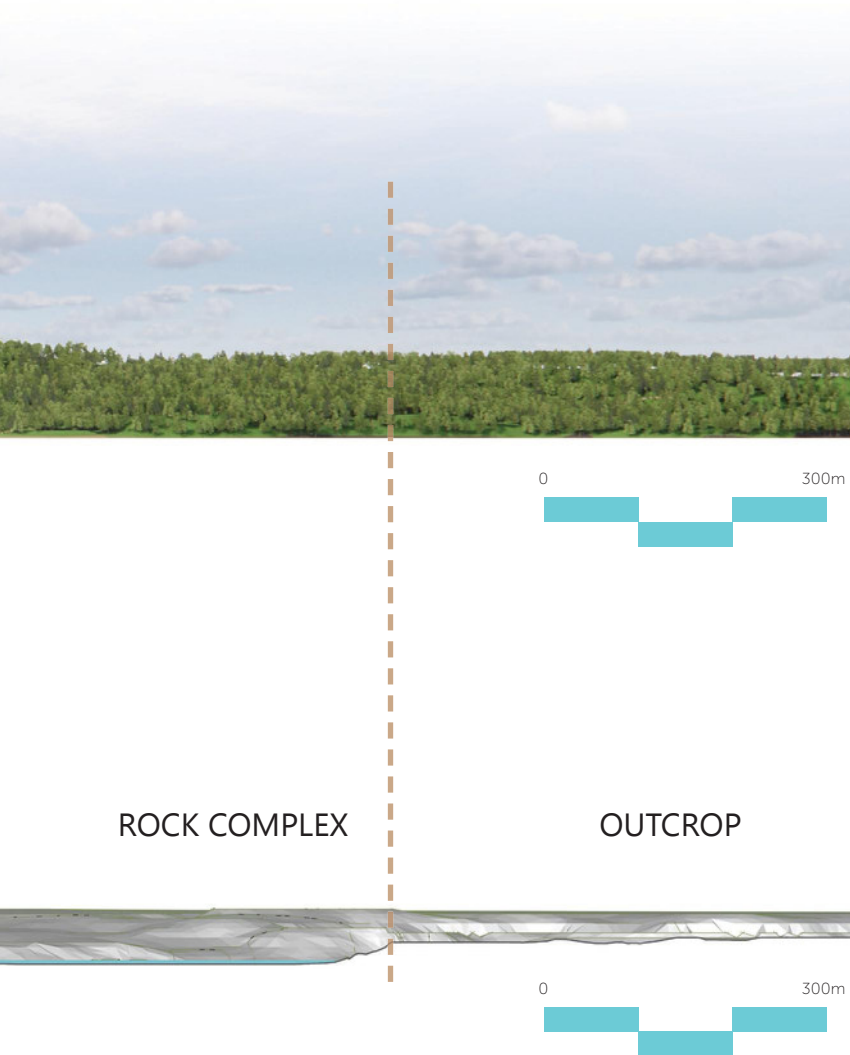


Figure 33: Excavated area exposing soil strata, southwest of Timber Landing

Figure 34. Site elevation facing north



Figure 35. Site section A-B showing typical soil complex distribution



4.3 Site Substrate

As shown on the site section cut and elevation, we can see the undulating nature of Timber Landing's topography. From the lake's surface to the highest part of the site, there is about a 65m change in elevation, with the most dramatic topography interval increasing in the east. Substrates in and around the site are classified as Monteaale Sandy Loam, a combination of stony, gravelly, or sandy loam in shallow depths overlying granite and gneiss rocks of Precambrian age.¹ As observed on the site, the soil west of the cabin is more sandy loam, and further east, it becomes stony until outcrops dominate the landscape.

1 J. E. Gillespie, R. E. Wicklund, and B. C. Matthews. 1966. p. 36-37.

MAP KEY



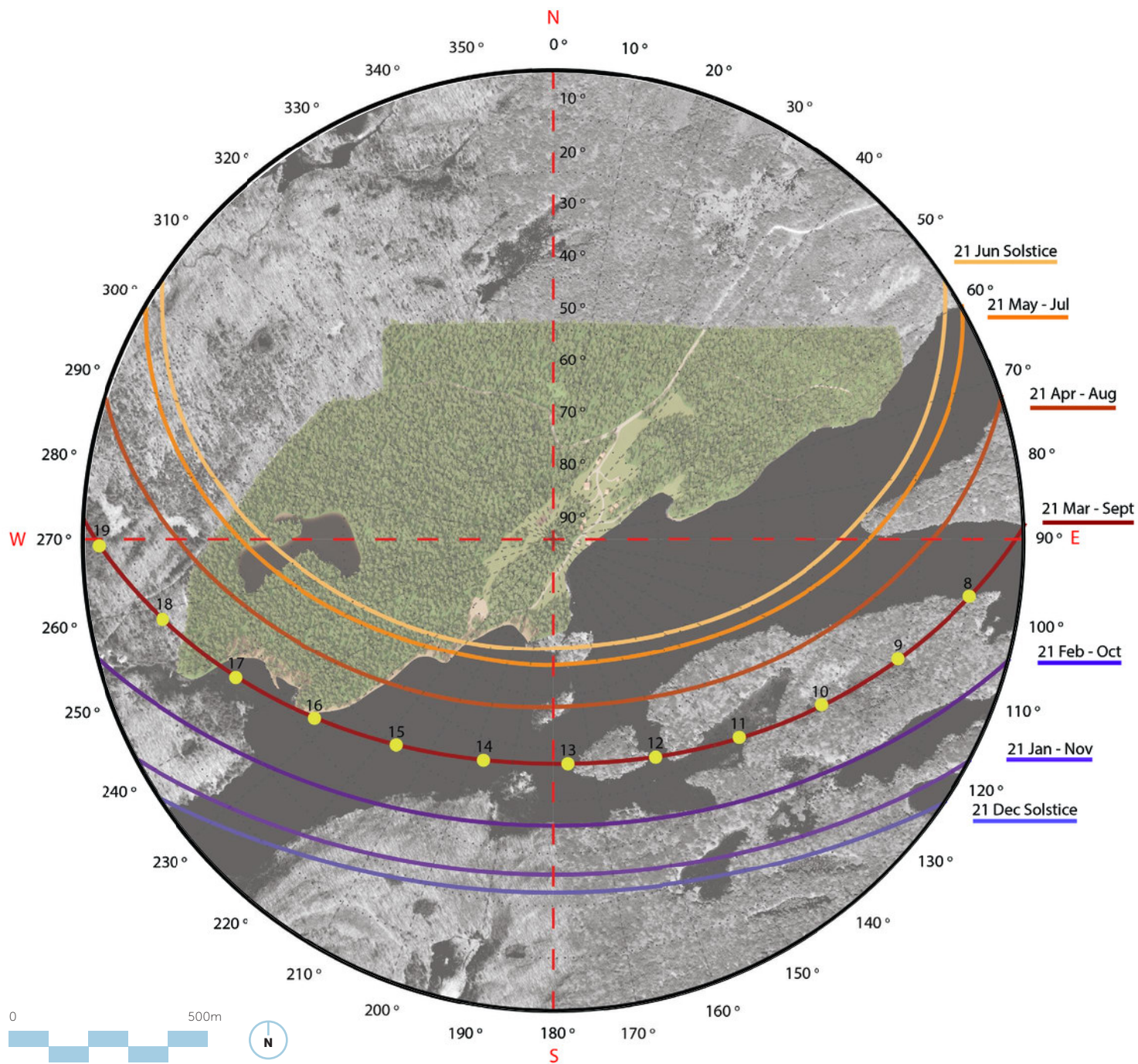


Figure 36. Site sun path diagram (DST)



Figure 37. 21 of May and July 8 am site shadow study



Figure 38. 21 of May and July 5 pm site shadow study



Figure 39. 21 of March and September 8 am site shadow study



Figure 40. 21 of March and September 5 pm site shadow study

4.4 Sun Path & Shadow Study

The clearing's orientation is extremely beneficial for cultivating plants. According to the sun path diagram from March to September, the majority of the clearing receives full sun from 7 a.m. to 5 p.m. Understanding sunlight availability is crucial in selecting the appropriate cultivars of wine grapes. Grape ripening depends on the quality and intensity of sunlight, altogether changing the fruit flavour profile. The shadow study also helps determine the extent of the proposed area for cultivation and where we can site roads and structures since space is limited.

4.5 TimBer Landing Biodiversity

The richness and biodiversity present in TimBer Landing is nothing short of abundance. The forest is dense and teeming with wildlife, even though most birds had migrated southward at the time of visiting in mid-October. During the visit, a few creatures were seen on-site, including a white-tailed deer, swans, painted turtles, a beaver, chipmunks and eagles. It was mentioned by the owners that the colony of beavers was only present within the last two years. In that short time, the beavers added a new habitat to TimBer Landing. It should also be noted that since the area is adjacent to Frontenac Provincial Park, a protected area, the wildlife there is even more abundant. Many mammals with large ranges, such as foxes, raccoons, black bears, moose, otters, coyotes, and wolves, can sometimes be seen on site. Although some of the shrubs and perennials on site have begun dormancy, some were still in bloom or easily identifiable. In addition to the varieties of deciduous and coniferous trees previously noted, the following were identified on-site: common yarrow, pussy toes, mullein, ostrich ferns, blue wood aster, staghorn sumac, Virginia creeper, and wood fern.



Figure 41. Mullein identified at numerous location on-site



Figure 42. Several beaver dens are located in the pond

4.6 TimBer Landing Climactic Future

It is given that the climate is at the forefront when it comes to the threats of agritourism or any agricultural activities, be it small-scale urban gardening or mass-production industry. Over the last decade or two, an incredible amount of research has been conducted to help speculate how our world has changed and will continue to do so as the global temperature rise continues. Now, interactive maps visualizing the possible changes are readily accessible, and one of these tools is the Climate Atlas of Canada. This section will focus on the data retrieved from their interactive maps to help paint a picture of how these possible changes might effect TimBer Landing. It will also be beneficial during the design stage when we start considering what type of agritourist activities will be proposed and the site's overall capacity to cultivate plants and maintain existing ecological processes. The climate data is presented at three scales: provincial, large grid (~100km square), and small grid (~30km x 60km). TimBer Landing is encompassed in the small grid identified as the Westport region. The images on the right depict the annual mean temperature of the Westport region, with the darker shade indicating higher temperatures. In 2005, the annual mean temperature was 6.9 degrees Celcius and is expected to rise to 9 degrees Celcius by 2050.¹ The projected scenario is based on a trend of high greenhouse gas emissions. For some, a change of 2.1 degrees Celcius might not be significant, but natural processes are tuned to the slightest changes. For example, the heating up of lake surface water and its inability to mix with colder deep water results in lower oxygen levels, forcing species like trout to surface for oxygen where the high temperatures may be fatal.²

1 Prairie Climate Centre. 2019.

2 Anon. 1974. p. 30-31.

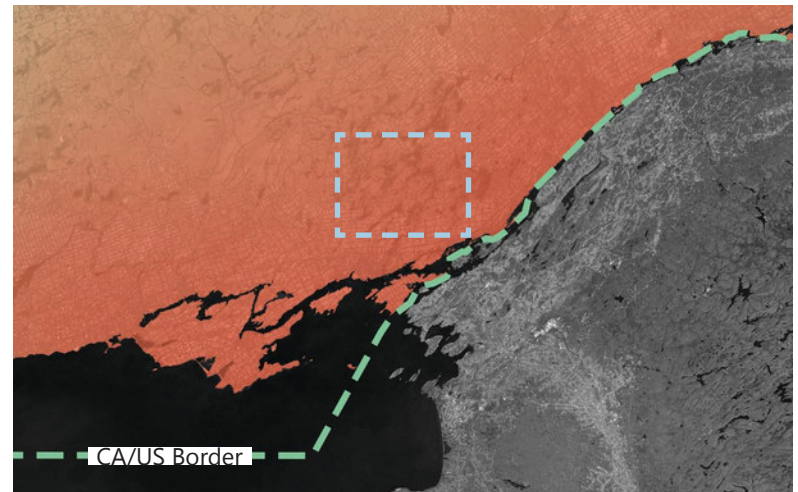


Figure 43. Westport annual mean temperature of 2005 (6.9°C)

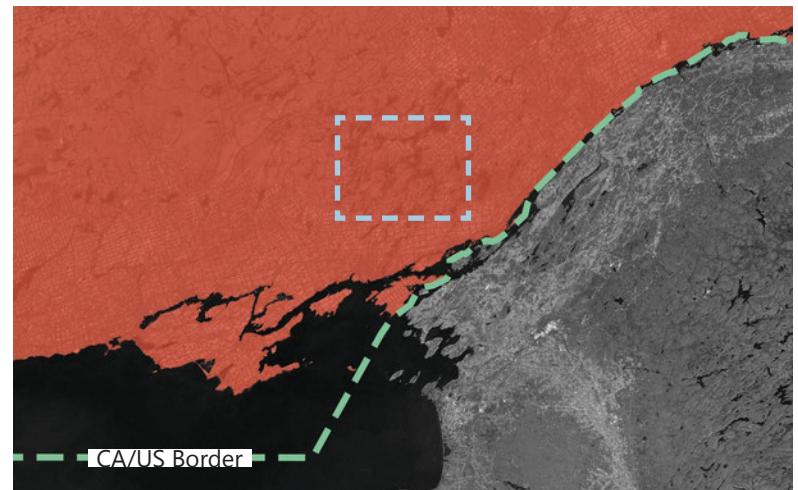
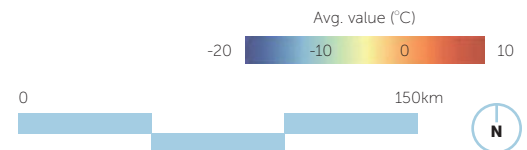


Figure 44. Westport annual mean temperature of 2050 (9°C)

Legend



Westport
Region



Climatic Future Continued

A change in annual mean temperature can also mean changes in other aspects of the climate, such as the frequency and length of extreme heat/cold weather, changes in annual precipitation levels, and the length of frost-free days. It is important to note that some changes in a region's climate are not experienced uniformly, and where one species is affected negatively by the change, it could be extremely beneficial to another species. For instance, the lake trout example depends on the fall season's cooling effects to correct the water temperature, yet prolonged summer conditions benefit many terrestrial animals, including humans.¹ However, too much sun can quickly turn into irreversible negative consequences. Between 2005 and the projected conditions of 2050, in a scenario of high greenhouse gas emissions, the Westport region gains roughly 18 days of annual extreme heat conditions above 30 degrees Celsius that could last up to 5 days straight.² Prolonged extreme heat and increased frequencies, especially in Canada in 2023, produced some of the largest cross-continental forest fires. Fortunately, some positive effects in the project scenario could benefit agritourism activities. From 2005 to 2050, there is a projected 7% increase in annual precipitation from 895mm to 955mm and an increase of 21 days of frost-free season, totalling 182 days by 2050.³ It benefits TimBer Landing by expanding the list of plants that can be grown and cultivated.

1 Anon. 1974. p. 30.
2 Prairie Climate Centre. 2019.
3 ibid.

* Figures 77-84 are based on the interactive map of the Climate Atlas of Canada (Prairie Climate Centre. 2019.)

Legend

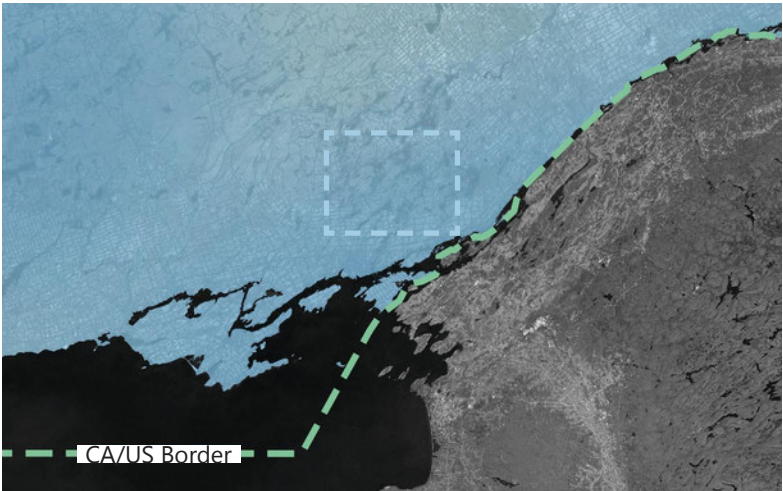


Figure 45. Westport number of day with extreme heat 2005 (Above 30° C) 9.8 days

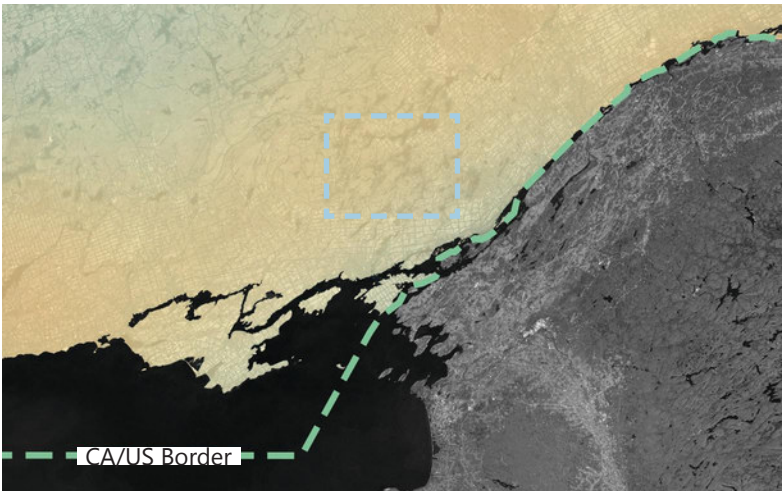


Figure 46. Westport number of day with extreme heat 2050 (Above 30° C) 18 days



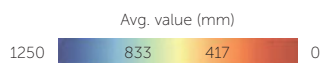
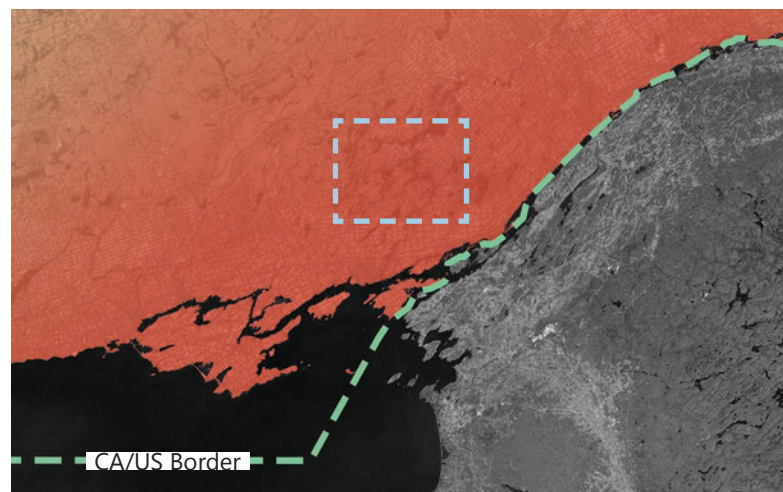
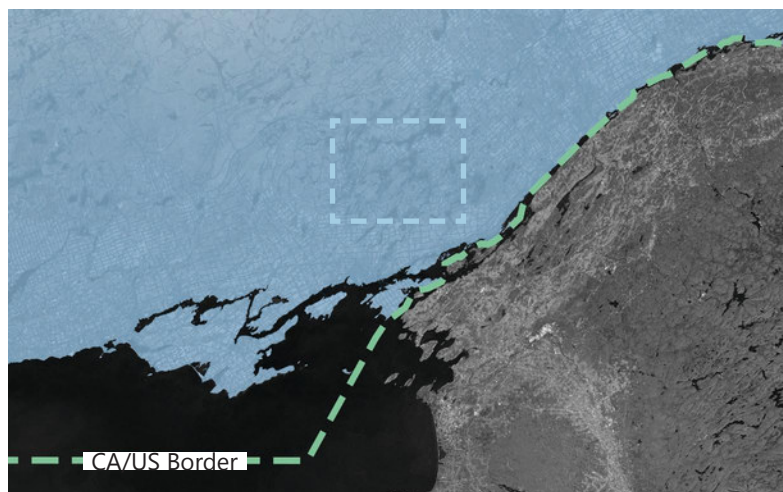
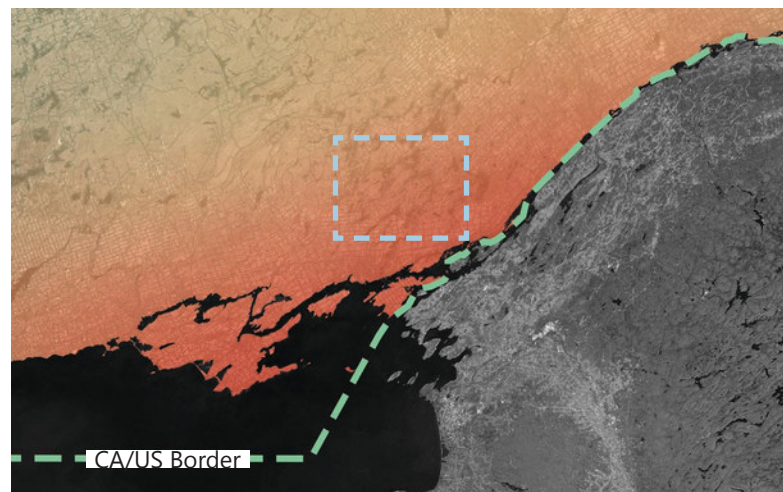
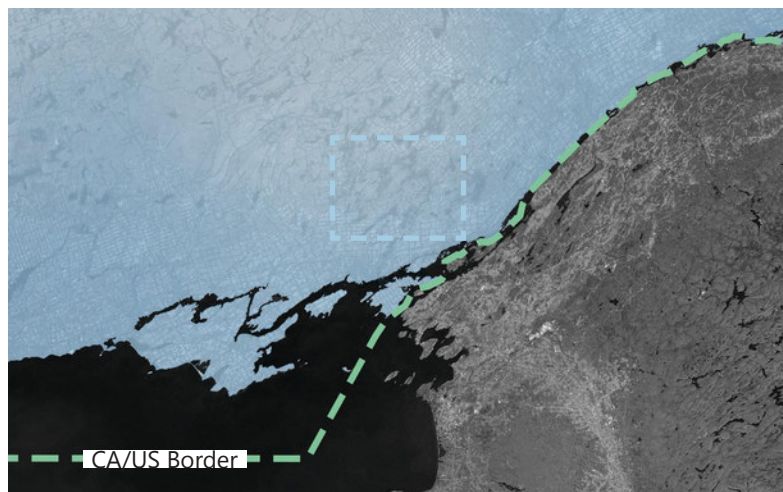




Figure 51. TimBer Landing clearing facing east



4.7 TimBer Landing Microclimate

Studying the region's climactic future based on scenarios and models of a speculated trajectory can be informative and help build a case for the viability of agriculture on the site. However, understanding the relationship between the forest, clearing, and the lake in terms of microclimate can build a much stronger case. Microclimate in outdoor naturalized areas is based on temperature, wind, humidity, dew, frost, evaporation, soil type and soil saturation, to name a few factors. While we do not have precise data, we can make some speculations based on existing context and some common knowledge of weather patterns on how the site's microclimate benefits the establishment of agricultural activities. In this example, the kind of microclimate we are talking about is the warmer temperatures in the winter months and cooler regulated temperatures during the growing seasons. The existing clearing is surrounded by the forest, creating a natural shelter from cooler winds that come from the northwest. The thinner stretch of forest and a small opening south of the clearing allow warmer air from the southwest to penetrate the clearing while maintaining a bluffer so the clearing is not dried out. The existing forest is not just a shelter from the wind; the forest influences the hydrological cycle, which helps regulate the temperatures in hotter weather within the clearing through infiltration and transpiration. Through infiltration, the soil in the clearing retains more moisture, affecting local temperature and beneficial for cultivating the clearing. Despite the forest surrounding the clearing, there is still sufficient sunlight.



Figure 52. 3D Model ofTimBer Landing produced with latest topography data, satellite imagery and drone photos to achieve likeness of the site

4.8 3D Modeling Exercise

In order to get a better understanding of what exists on the site because of the large area, the following section will showcase 3D modelling of the site at various locations with section drawings and photos. The total area in each section is roughly 100m x 300m.

Section 1

This section is the most diverse in flora and fauna because it features the beaver pond, the forest, the creek, and the lake. It was easy to navigate, but sections along the creek were difficult to cross because the water eroded most of the soil, exposing channels of large boulders.

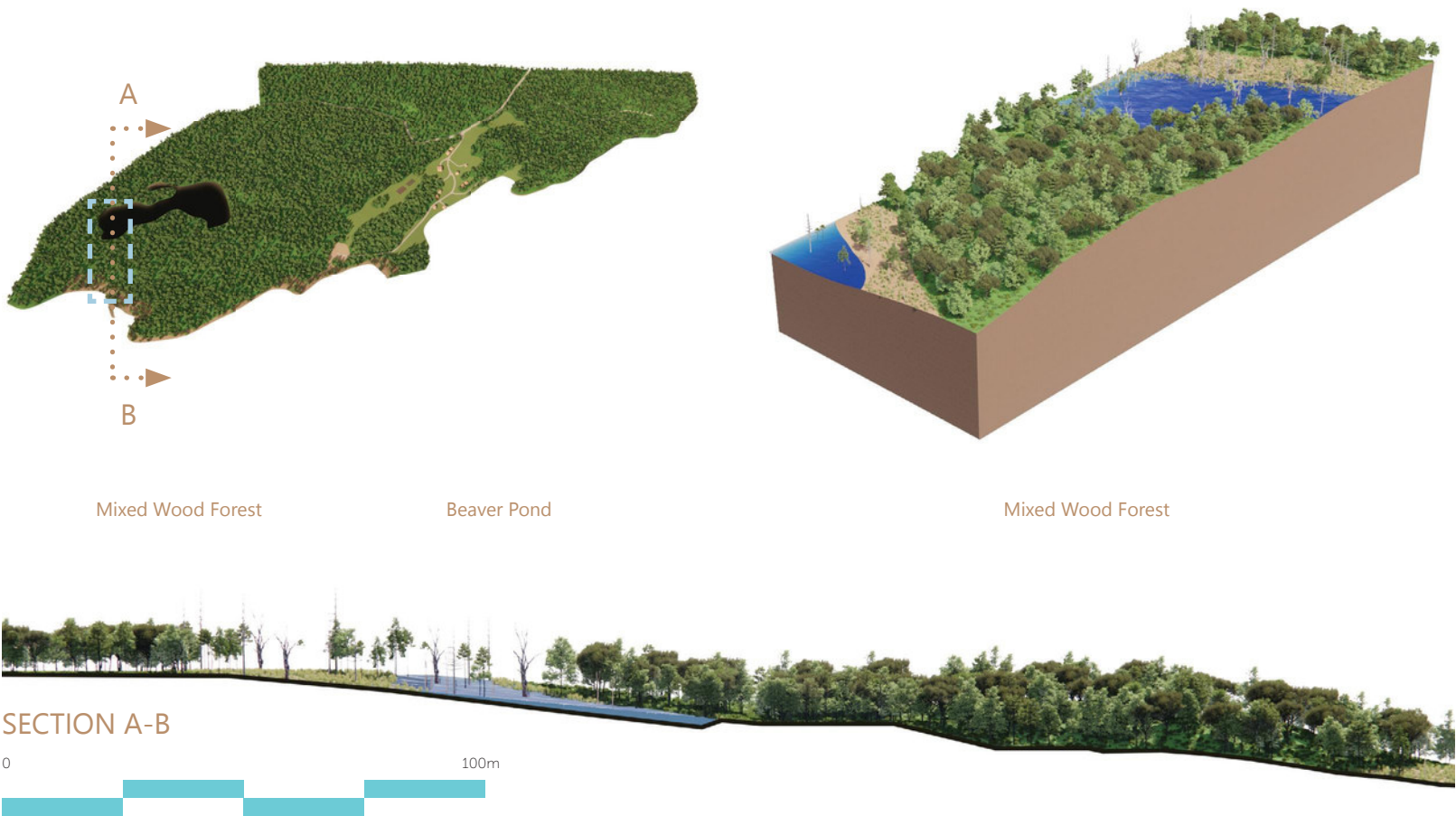


Figure 53 Section 1 - site plan, section elevation, axonometric model



Figure 54. The shallow clear water of Devil Lake along the westernmost site shoreline



Figure 55. Dendritic creek that feeds into the beaver Pond



Figure 56. Beaver dam

Section 2

The undulating landscape was evident while exploring this section despite the heavy vegetation cover. It was the first stop while exploring the site and was very easy to access since there were existing trails where the contour had a slight plateau. The view of the lake and the provincial park by the shoreline was incredible.

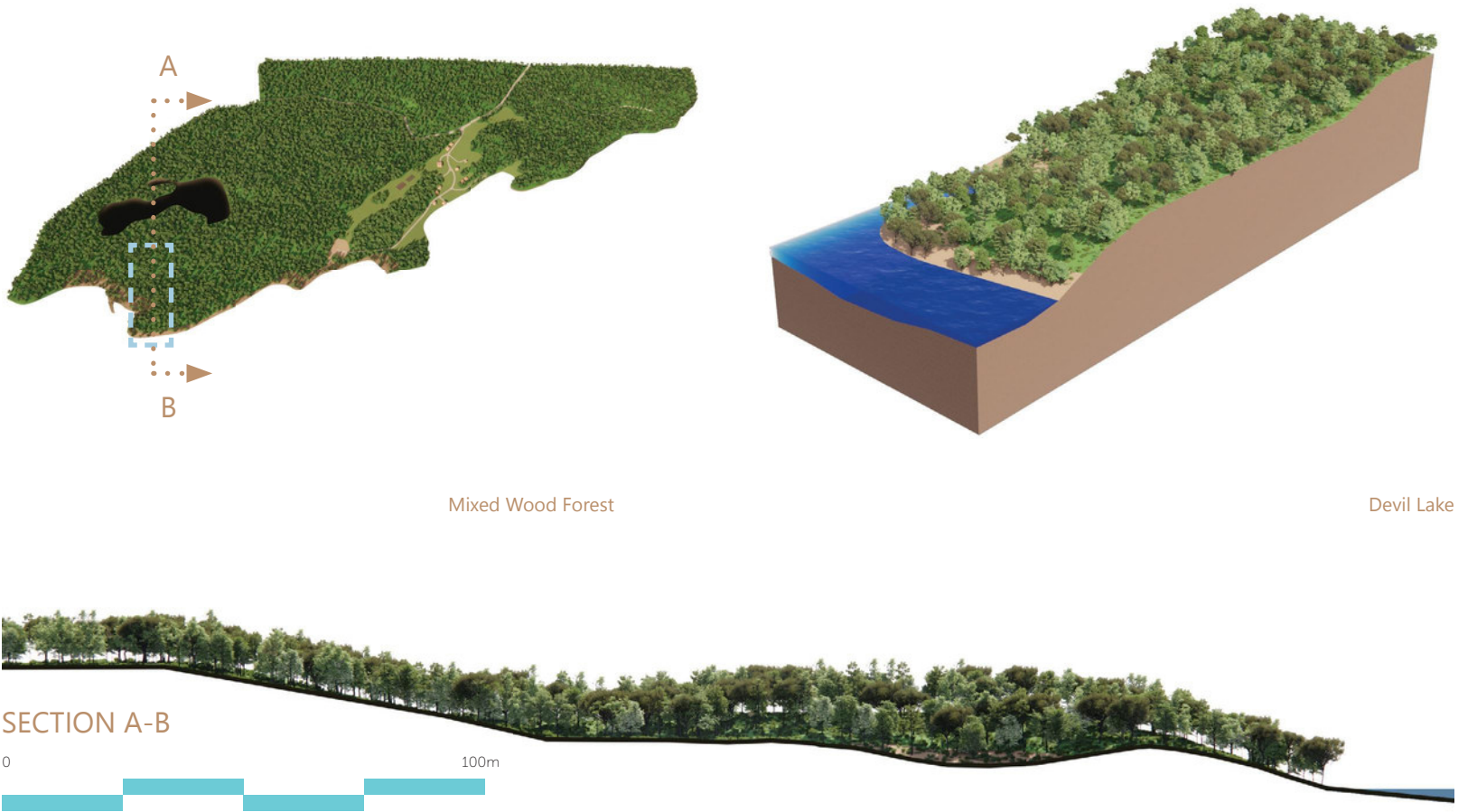


Figure 57. Section 2 - site plan, section elevation, axonometric model



Figure 58. Deadwood along the rolling terrain

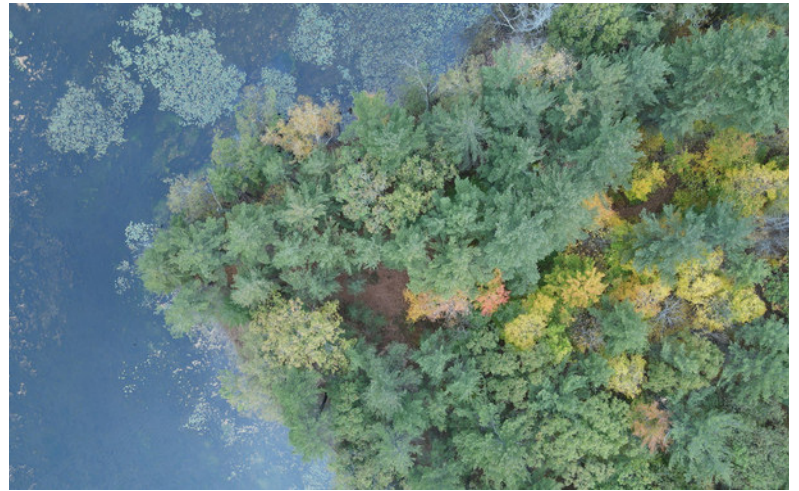


Figure 59. Coniferous trees along the shoreline



Figure 60. The forest floor was covered with pine needles, making walking on the ground bouncy

Section 3

During the site exploration, the landowners were adamant about showing the sand pit because they wanted to protect the area. They do their part by scaring off predators digging around to protect the turtle eggs buried in the soft sandy soils. The old owners did not care for the turtles and excavated sand from the pit to build an artificial beach nearby.

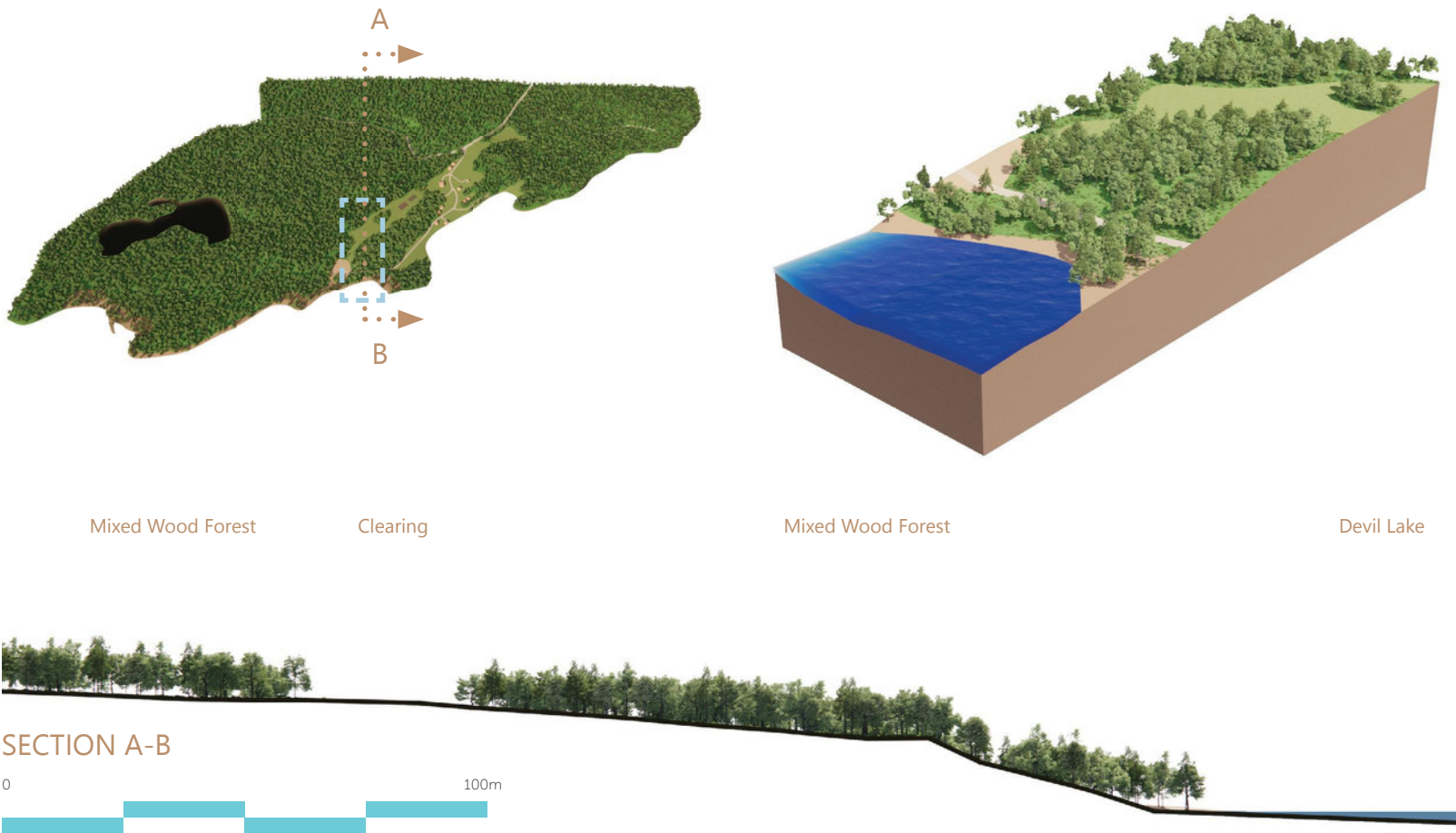


Figure 61. Section 3 - site plan, section elevation, axonometric model



Figure 62. View over the sand pit



Figure 63. View when entering the elongated clearing from the forest



Figure 64. Leathery remains of turtle eggshells

Section 4

The land owners noted that the road accessing TimBer Landing and the surrounding cottages was, in part, managed and cleared during the off-season by the owners of the cottages in the area. This rotating responsibility is important because some cottages are used throughout the entire year.

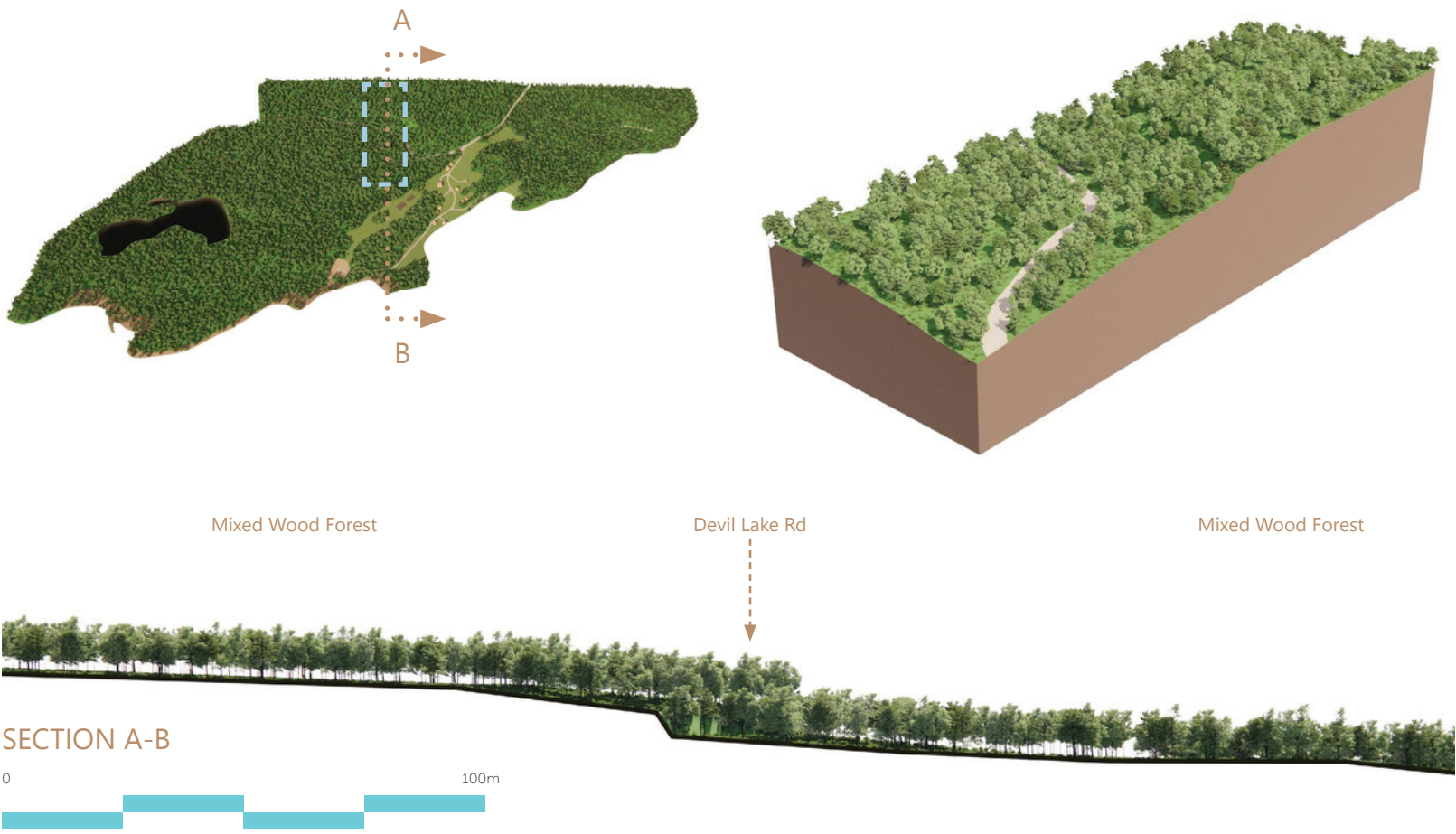


Figure 65. Section 4 - site plan, section elevation, axonometric model



Figure 66. Gravel road which provides access to TimBer Landing



Figure 67. Relatively flat area on-site covered with autumn colours

Section 5

During the visit, TimBer Landing was maintained by a groundskeeper who resided in the existing farmhouse along with the landowners. It was examined that most built structures needed to be replaced or removed completely. Upkeep of the lawns for an individual can easily take a day and a half to two days.

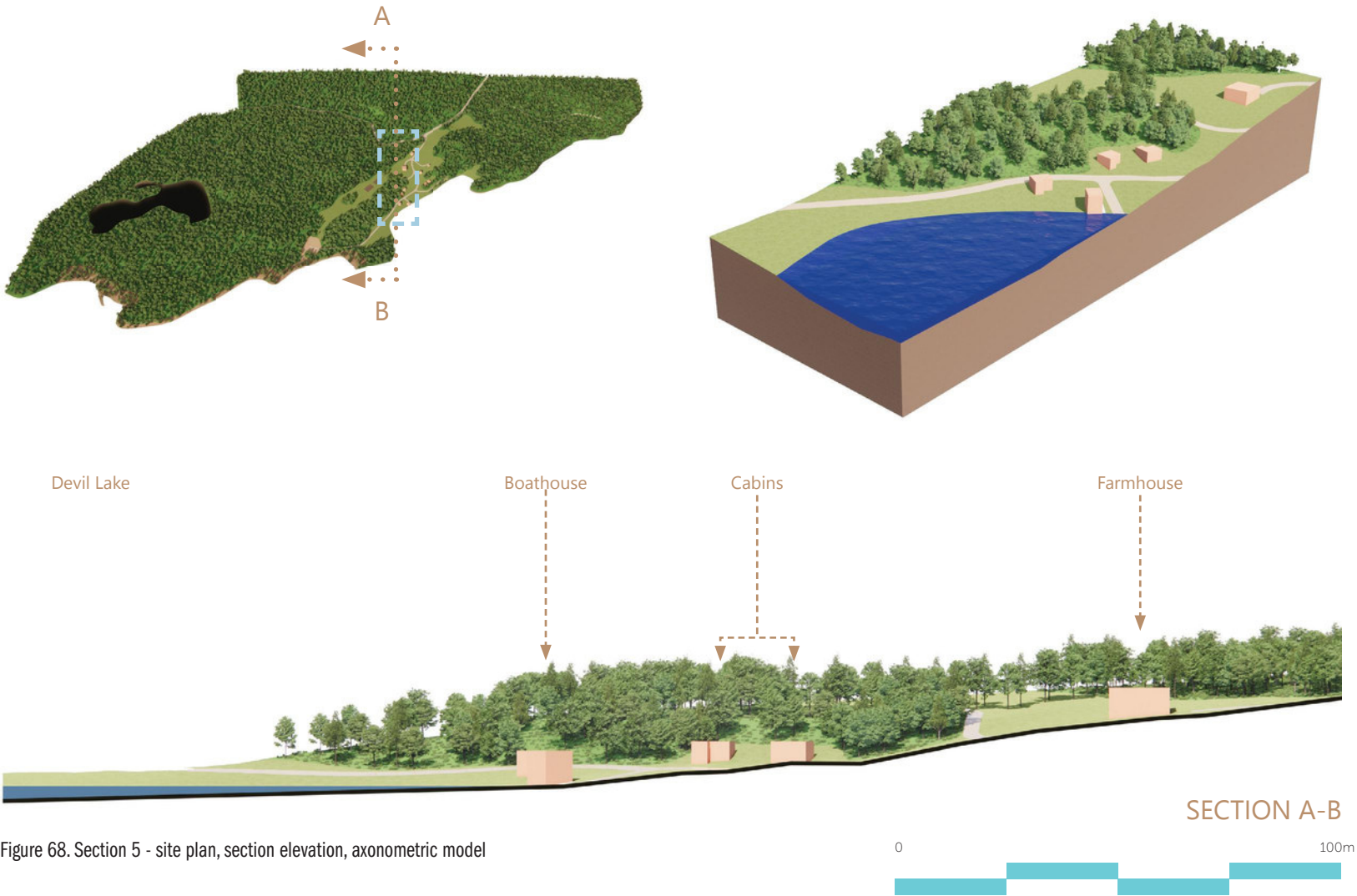


Figure 68. Section 5 - site plan, section elevation, axonometric model



Figure 69. View over Devil Lake Rd showing some of the existing buildings on site



Figure 70. View over the boathouse and three cabins



Figure 71. Test plot vegetable garden to see what would grow on site

Section 6

In examining the clearing, it is easy to see how the topography, due to its orientation and slopes, lends itself to the introduction of vineyards. The decommissioned RV park section can be utilized again once properly maintained since the zoning is already in place, and rezoning next to a protected lake could prove difficult.

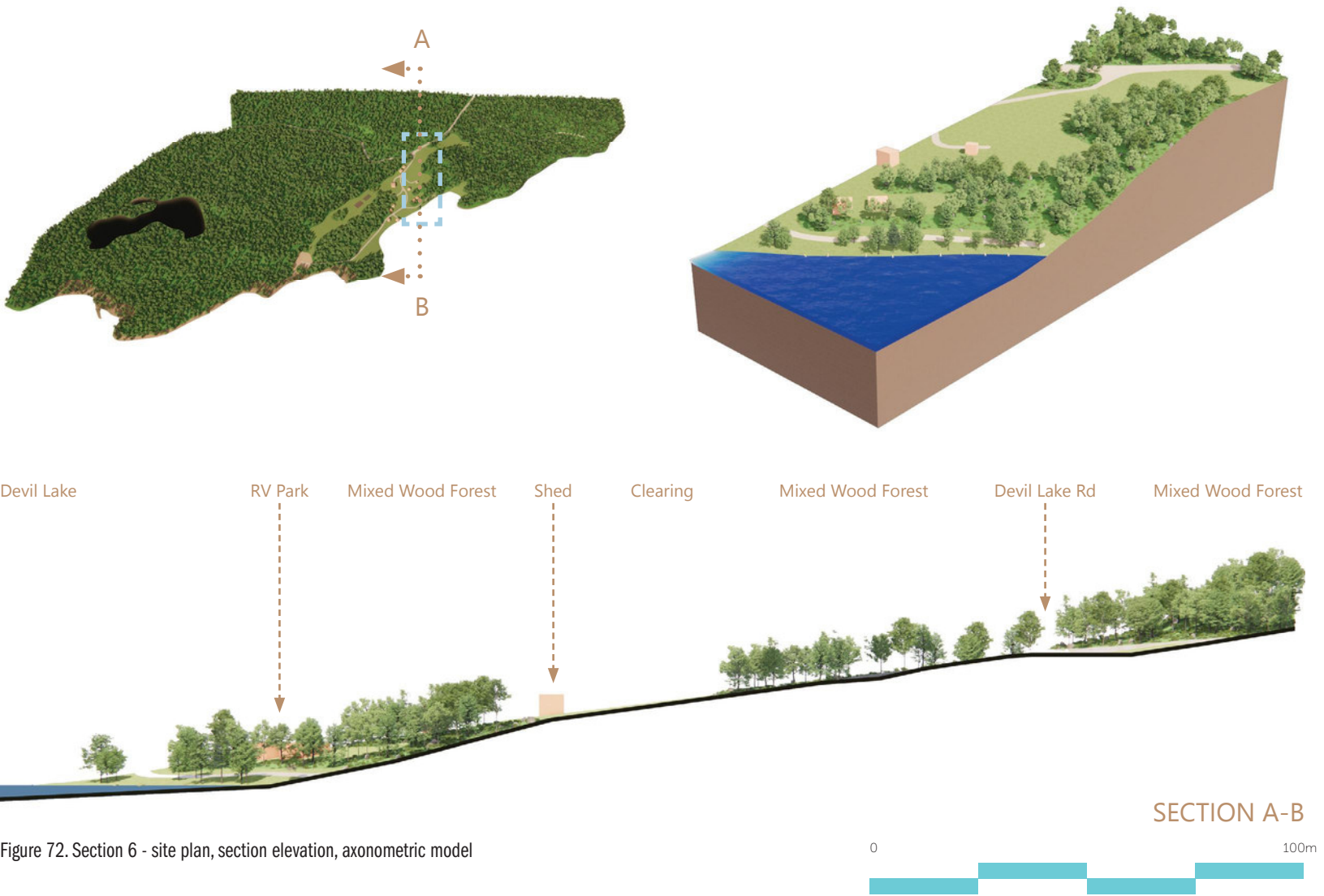


Figure 72. Section 6 - site plan, section elevation, axonometric model



Figure 73. Entrance road to the site



Figure 74. A section of the shoreline that was treated as the RV's park with semi-permanent docks

Section 7

The small clearing surrounded by trees offers a unique opportunity for a designed section that can be cultivated and become an extension of the forest. Large piles of fill with burbles were present on site, and the landscape started to become visibly more rugged as large boulders and the rocky complex became exposed.

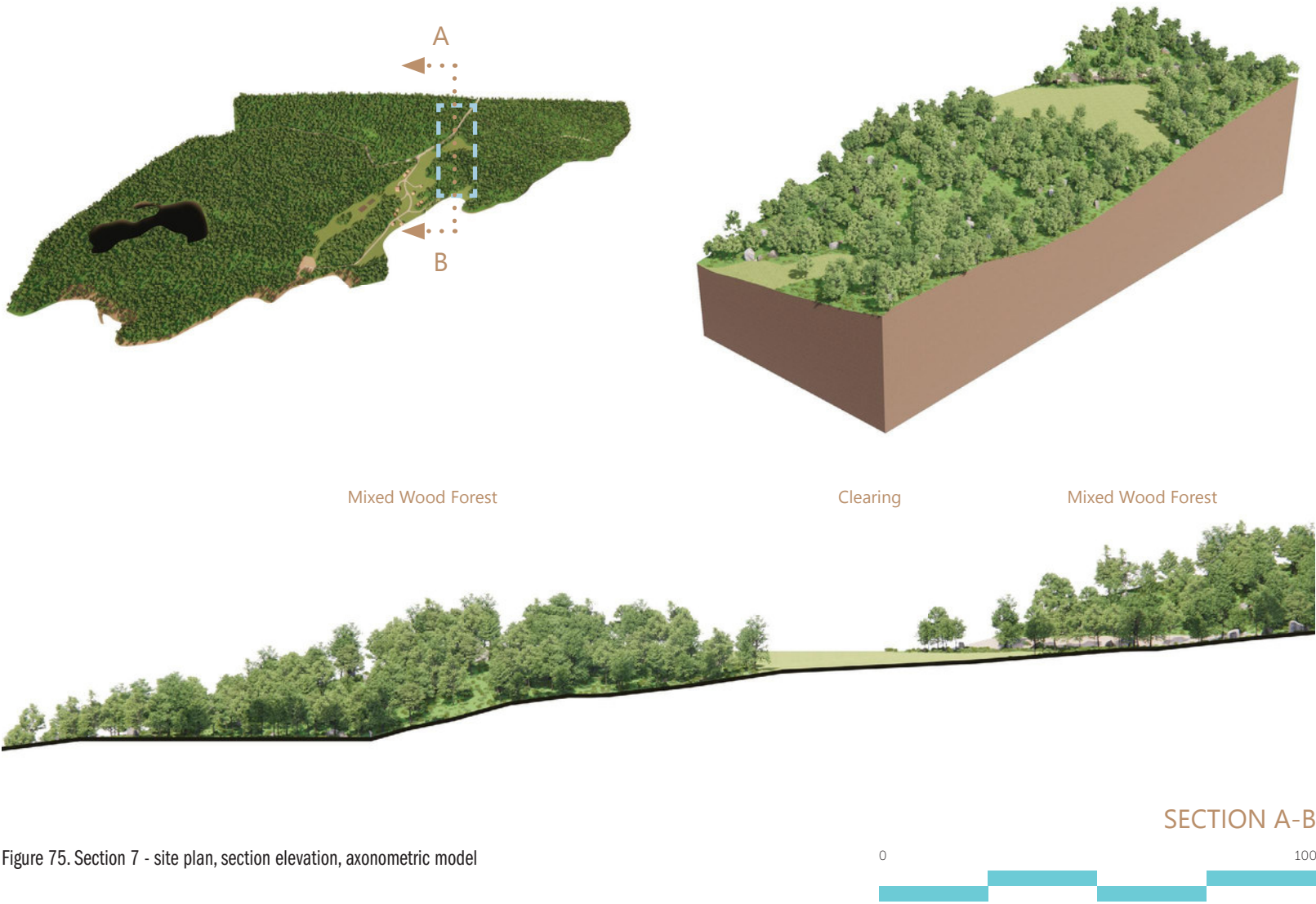


Figure 75. Section 7 - site plan, section elevation, axonometric model



Figure 76. Granite outcrops make it difficult to access certain areas



Figure 77. Small clearing near the entrance to the site

Section 8

Accessing this section was a challenge as the slope became increasingly steep. The trees in this area had smaller callipers and were more numerous, indicating they were new growth, some 10 to 15 years old. The tree species composition in this area was more deciduous trees, such as maples.

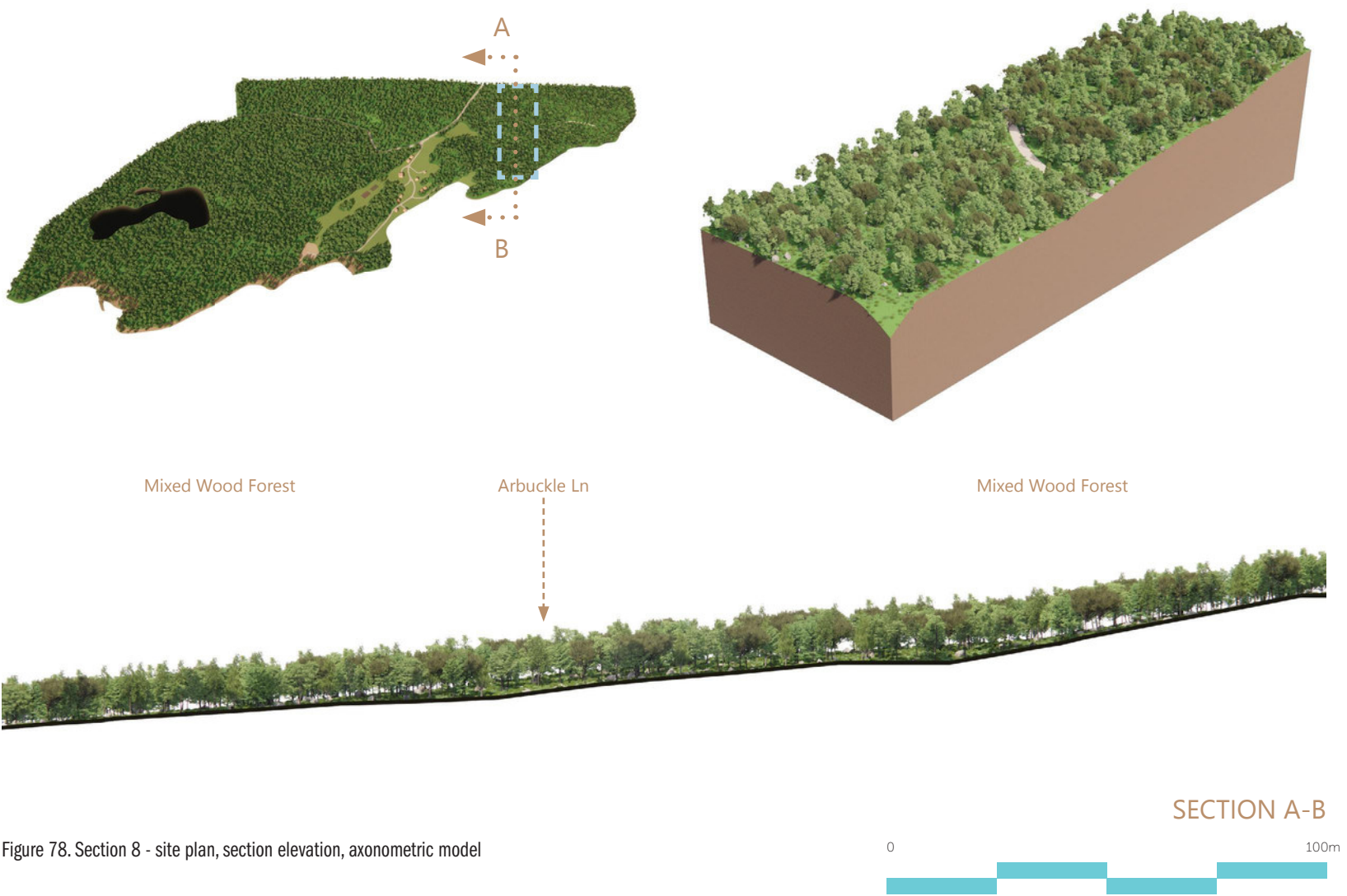


Figure 78. Section 8 - site plan, section elevation, axonometric model



Figure 79. Steep inclines on the eastern part of the site



Figure 80. Moss-covered rocks adorn the landscape

Section 9

The views in this section are incredible. One can see one-third of Devil Lake, thirty to forty meters above the lake's surface. It faces the east, making it an ideal sunrise viewing spot. Rugged and mostly covered with rocks and outcroppings, there were traces of people illegally starting a firepit, which can be catastrophic on dry summers and windy days.

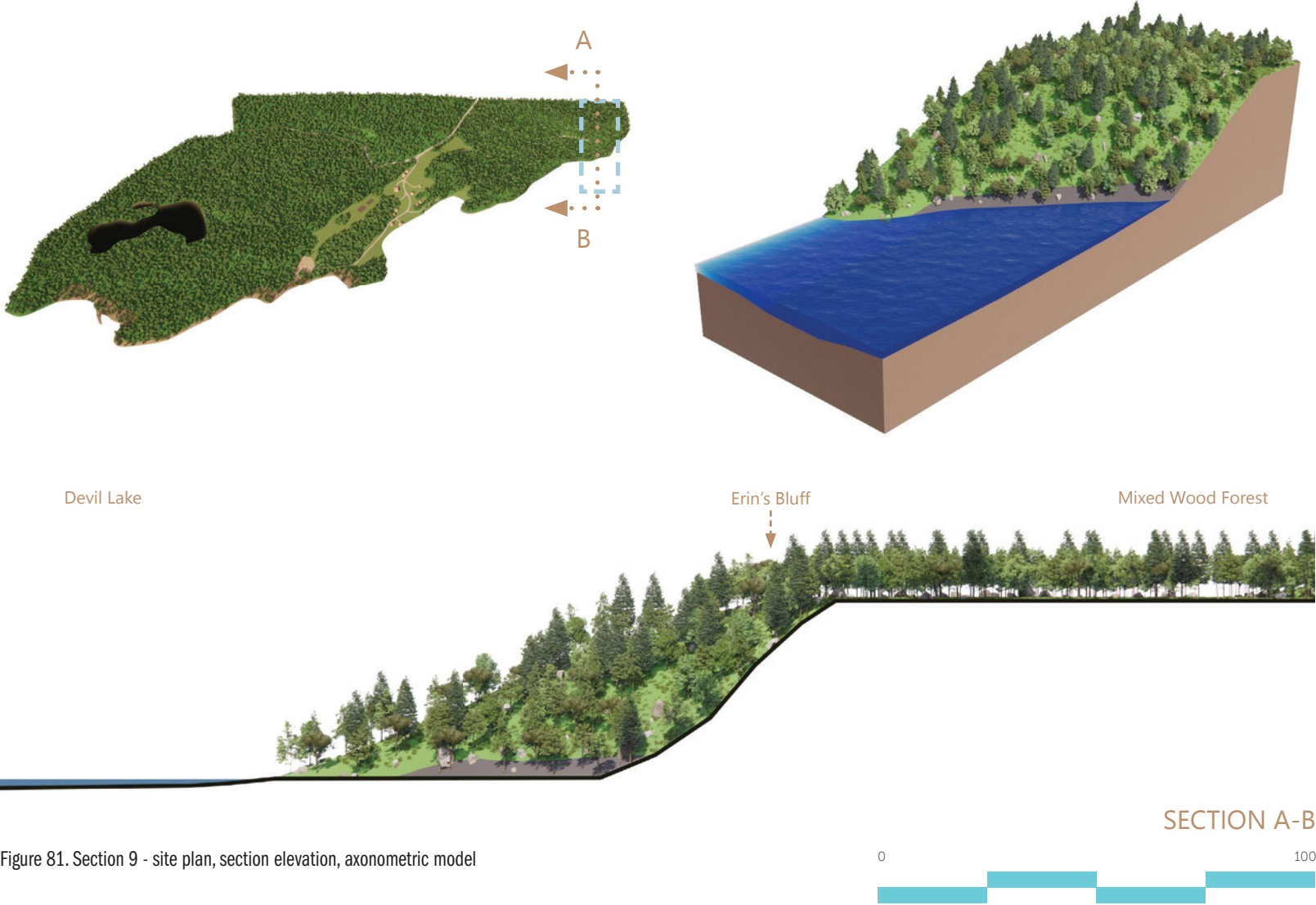


Figure 81. Section 9 - site plan, section elevation, axonometric model



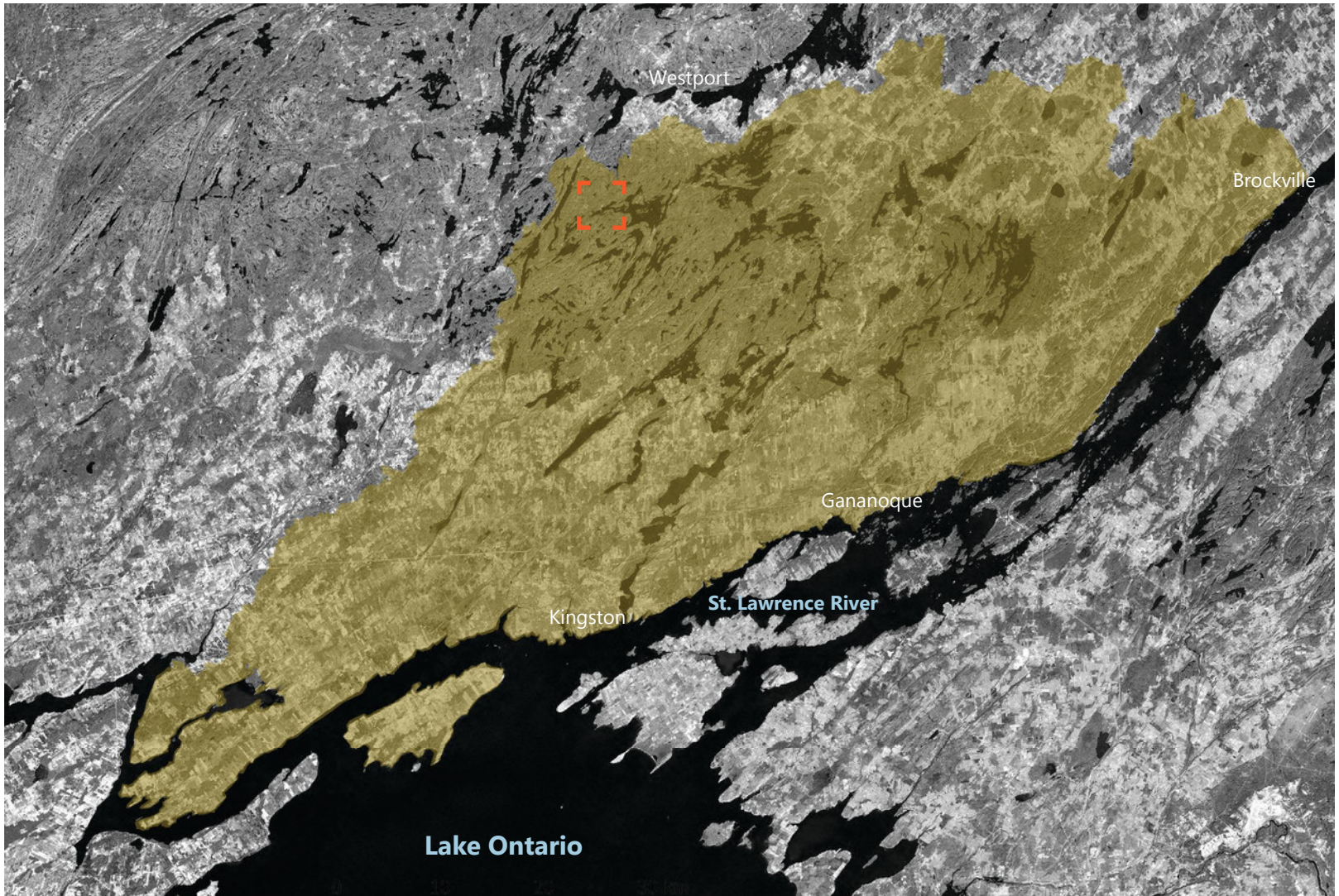
Figure 82. The view at the easternmost edge of the site is referred to by the owners as Erin's Bluff



Figure 83. Section of dead and dying trees near Erin's Bluff



Figure 84. Traces of an illegal camp fire



Legend



Site



Cataraqui Conservation



Figure 85. CRCA Conservation lands

4.9 Design Parameters & Impact Assessment

Under the Ontario Conservation Authorities Act, the Cataraqui Region Conservation Authority (CRCA) oversees and manages developments and permitting within its boundaries, as shown in Figure 87. The Authority may grant permission if, “in its opinion, the control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected by the development”.¹ The proposed design and programming can be solidified once the regulations set forth by the CRCA has been identified.

¹ CRCA. Appendix D. 2023.



Figure 86. One of several decrepit docks constructed for the RV Park

Special Zoning¹

TimBer Landing has special zoning as it was a commercial enterprise established before the new zoning rules came into effect. The zoning permits the uses of the following:

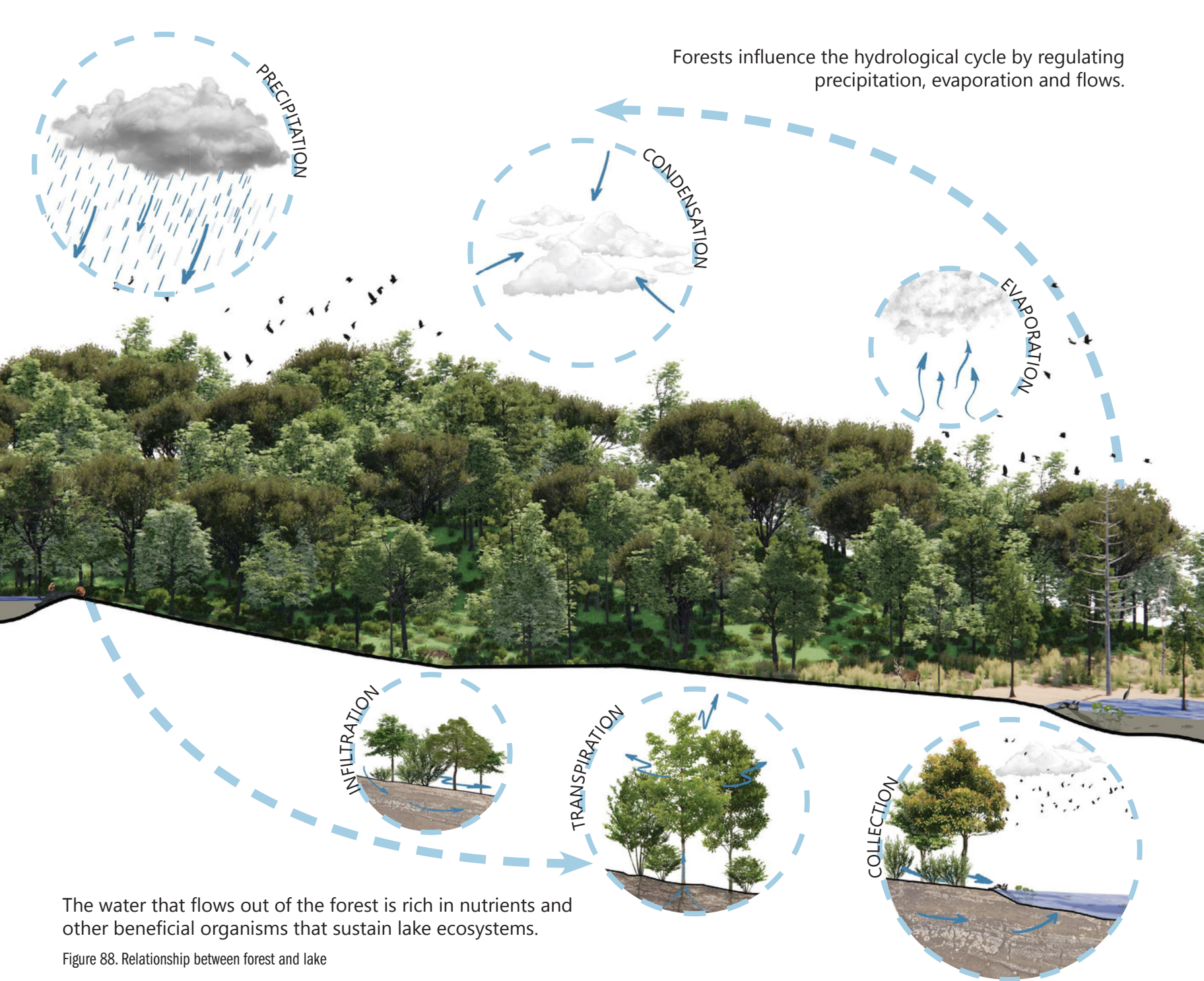
- a. A tourist establishment consisting of twelve campsites and five tourist cabins;
- b. One mobile home;
- c. One camp administration building and accessory dwelling unit;
- d. Accessory buildings and structures to the above uses.

¹ South Frontenac. 2024.

No building or structure other than a marine facility, except for seven campsites and one tourist cabin, shall be located within 30m of Devil Lake's high water mark. Replacement of any trailer on these campsites or reconstruction of this cabin within the 30m setback shall be permitted, provided the trailers do not increase in size or gross floor area and are not closer to the high water mark.



Figure 87. One of five cabins with this one being built right at the shoreline



Environmental Impact Assessment

The CRCA has been stewards and guardians of natural areas in the region for nearly 60 years. By operating within the CRCA guidelines and policies and producing an environmental impact assessment (EIA) on TimBer Landing, we can better set an appropriate setback and make informed design decisions for the proposed development. Please note that this EIA is meant to elaborate on some aspects already discussed or introduced in Chapter 4 Site Analysis. The first step is to identify and clearly illustrate the importance and location of natural heritage systems. The systems comprise natural heritage features and areas connected through ecological processes or physical corridors necessary to maintain biological and geological diversity, functions, and viable populations of indigenous species and ecosystems.¹ Natural heritage features are significant landscape features, such as wetlands, shorelines, and woodlands, critical for their environmental and social values.² Including the word heritage in the terminology is a distinction in conservation policies for long-term protection.

1 Ontario Ministry of Natural Resources. 2010. p. 16.

2 Ontario Ministry of Natural Resources. 2010. p. 17.

TimBer Landing is part of a larger natural heritage system, but if we look closely, we can see three features that must be protected: the beaver pond, the forest, and the shorelines. As illustrated Figure 88, each feature plays a critical role in establishing and maintaining a healthy relationship between terrestrial and aquatic species and their socio-economic values. The forest and pond habitat help sequester carbon, and the many beneficial organisms that live there also sustain life along the shoreline, affecting the entire lake ecosystem as nutrients and certain organisms get washed up in shallow waters. These shallow waters are important for rearing aquatic and semi-terrestrial species of reptiles and amphibians. Any development within the shoreline should also be mindful of annual spring flooding, deadwood, and vegetation; their removal and maintenance should be limited. Protecting and maintaining the site's hydrology is equally important since inland lakes like Devil Lake's water level are uncontrolled and depend on streams, creeks, and river systems to facilitate and maintain nutrient flows and oxygenated water.

Assessment Continued

An environmental impact assessment is conducted to evaluate TimBer Landing using the CRCA's site evaluation guidelines for waterfront development on Precambrian Shield Lakes.¹ This evaluation will determine an appropriate horizontal setback or buffer zone between wetlands, marshes and the shoreline. The evaluation is based on four criteria and can be awarded anywhere from 0 to 12, with the lower end of the scoring system resulting in a shorter setback and with limited areas to develop; every point matters. The first criterion is soil depth, which receives a score of 6 out of 10 with a soil depth of 50-75cm. It is important to note that roughly 6% of TimBer Landing is closer to 75-100cm, which would have scored lower. The second criterion is soil characteristics, which receive a score of 3 out of 10. Characterized as a Monteagle sandy loam-rock complex, the soil has a medium to high phosphorus retention capability. The third criterion is slopes, which receive a 0 out of 12. Except for the eastern part of the site, the average slope of the site is less than 13%. The last criterion concerns the vegetation cover, which scores a 1 out of 10. Since most of the site is forested and has a history of cleared sections for grazing, it is considered disturbed woodlands, old fields, and meadows. Overall, TimBer Landing scored 10, which, according to the guidelines, means a horizontal setback of 30m is required.

Conclusion: According to the CRCA development guidelines, the minimum setback is 30m measured horizontally from the highest annual spring water levels and not measured along the slope's surface. The 30m setback still allows for substantial development in and around the site clearings. However, the design and programming of the site should stay clear from the shoreline, and any development around the beaver pond must respect the 30m setback. In addition, it should be noted that the construction of permanent structures should be limited, and site drainage must be designed not to impede the natural water flow on the site dramatically. Establishing agricultural activities on the site can help mitigate phosphorus overload in the lake's shallow water, which is of great concern as algae blooms and significant aquatic plant growth are detrimental to lake ecosystems. On the other hand, fertilizer should be used sparingly or not at all. We should also be mindful not to cultivate invasive species and have adequate and safe methods for dealing with wild animals grazing the agricultural fields. Provided the scope of development is concentrated in the site clearings and meets the setback requirements, there should be little to no negative impact on the site's ecological function.

1 CRCA, Appendix G. 2023.

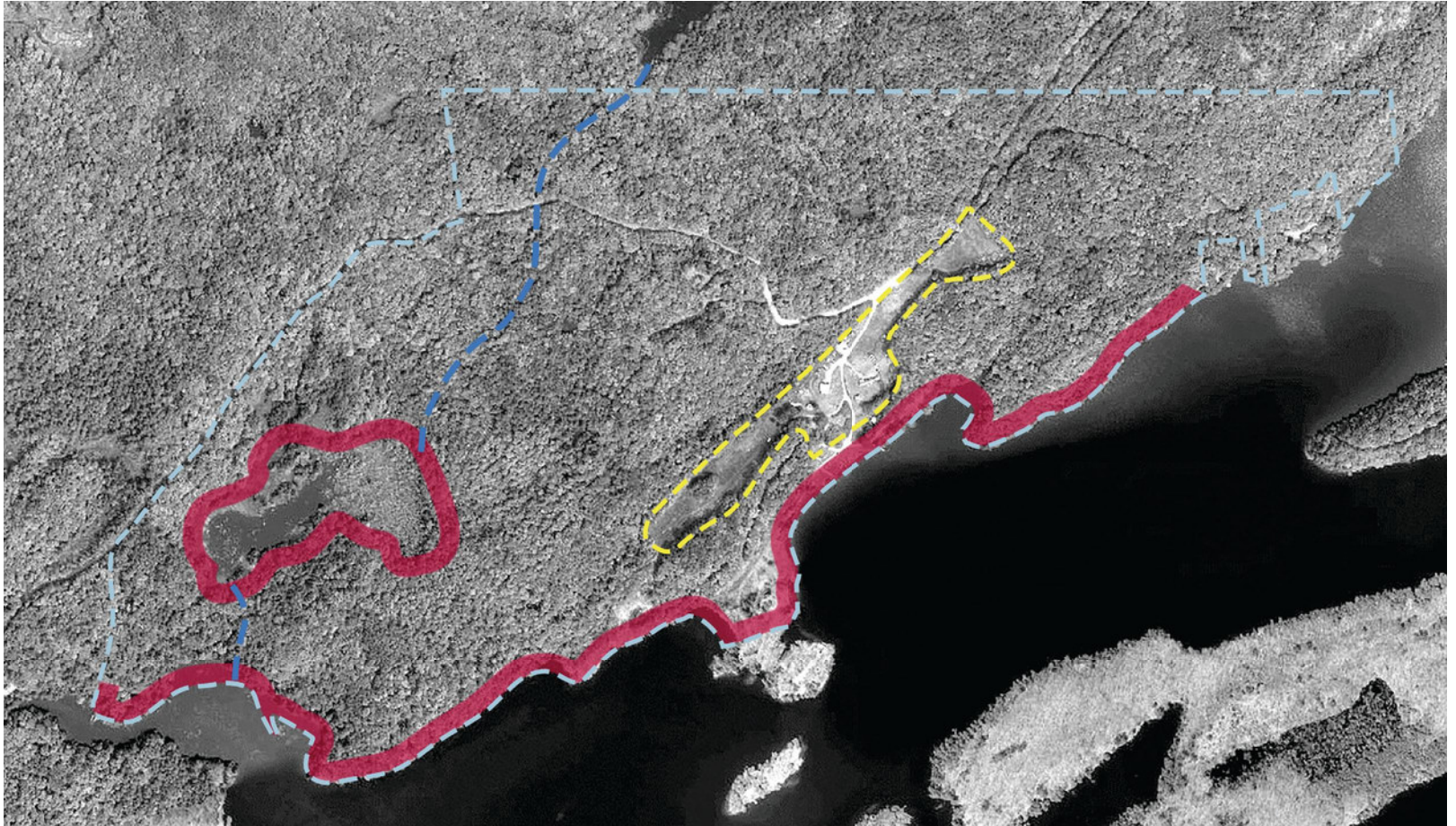


Figure 89. Proposed setbacks and limits of development plan

Legend

- | | | | |
|---|-------|---|--------------------------|
|  | Site |  | 30m Setback |
|  | Creek |  | Focused Development Area |



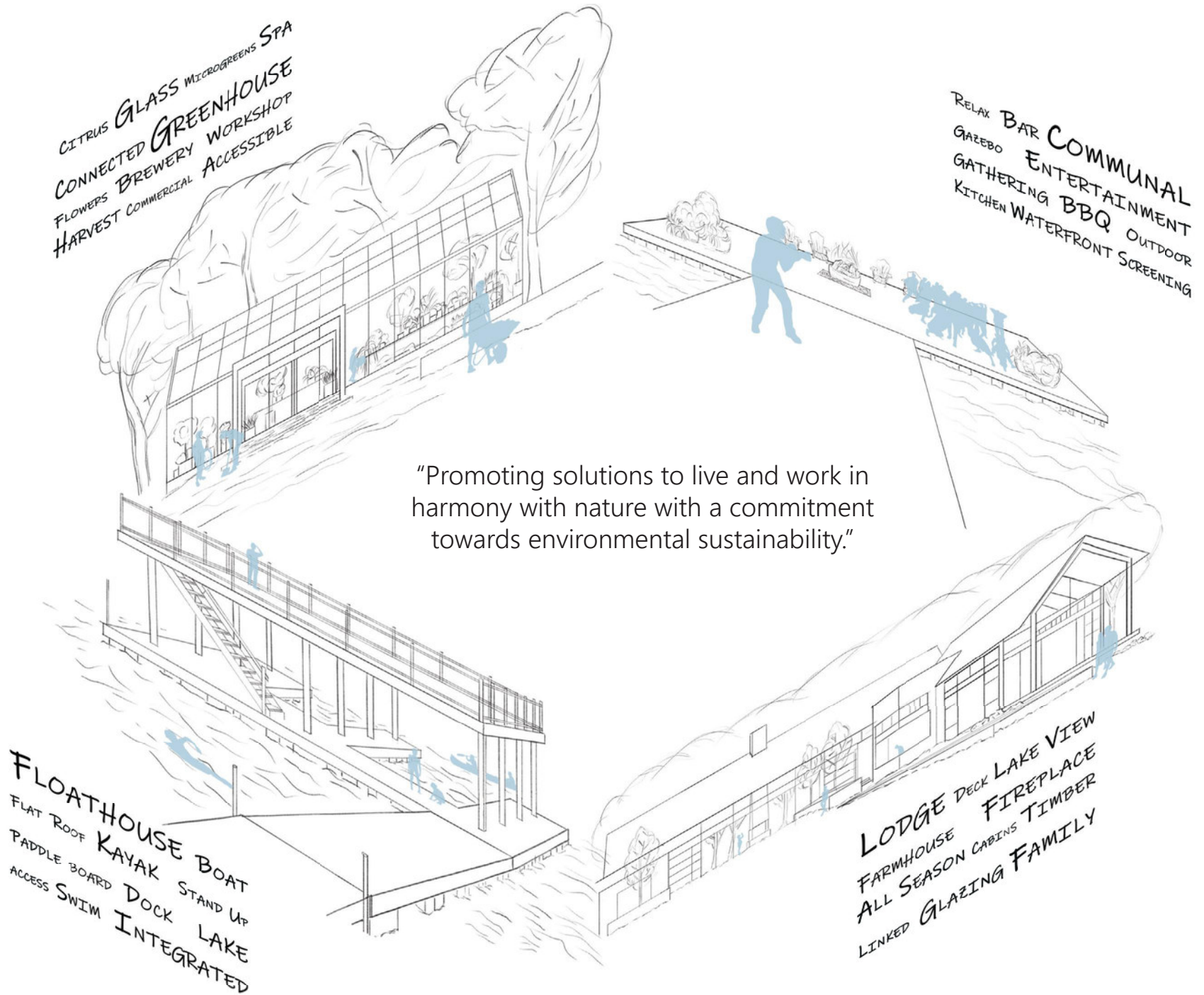


Figure 90. Vision and inspiration collage (Frontenac Arch Biosphere. 2023. About Us.)

CHAPTER 5 - THE VISION

In a document compiled by Tim and Beryle, they listed many references and their vision for the site. The references included the total number of guests, ideal additional structures and square footage, programming, proposed phasing, and budgets. This section summarizes pertinent information from the document and conversations with the landowners to develop the conceptual design of the site. When the opportunity arose, Tim and Beryle put their entrepreneurial spirit into action and began their journey to transform and awaken TimBer Landing as a legacy project. The owner's vision for the site and the next 100 years is for TimBer Landing to be a destination for their growing family and friends. Tim and Beryle were inspired to develop TimBer Landing for agritourism, mainly for their family, while still having the opportunity to transition for the wider community to help with the maintenance and operations of the site through their experiences in Italy and a local winery. Although some commercial activities are envisioned in the 100-year plan, such as brewing craft beers, growing grapes for wine, making maple syrup, and, on occasion, hosting special events, generating income is not the property's primary purpose. This phasing plan is the owner's initial proposal for developing the site for the first 10 years.

Phase One: Realignment of the access road to accommodate the site upgrades; renovation or rebuilding the farmhouse into a lodge of roughly 3000 sq. ft; renovation or rebuilding the five cabins; converting the boathouse into a waterfront dining area; constructing a floating boat port; converting 3.5 acres of the clearing to be farmed for produce such as vegetables, berry patches, vineyard and a small orchard; construction of a new guest cabin roughly 1500 sq. ft; and construction of a caretaker/admin building. (Year 1-2)

Phase Two: Expand the site's amenities further by constructing a second guest cabin, a spa with the capacity to accommodate a space for laundry, a garage and a workshop with a combined area of 1500 sq. ft, a yoga pavilion, and a greenhouse. (Year 2-5)

Phase Three: Add a third guest cabin, roughly 1500 sq. ft and a dedicated facility to process sap into syrup, grapes into wine, and fruits into spirits or cider. (Year 5-10)

Other features the owner has considered include a road side stall for when there is a surplus of produce, a trail system to explore the property on foot, bike or cross-country skis, a small beach area, and an outdoor restaurant/bar able to accommodate a maximum of 30 visitors. Additionally, Tim and Beryle plan on hiring two agricultural students for seasonal work to help manage gardens and general labour and a foreman/forewoman with experience in agriculture, horticulture, or forestry to help manage the site and operations. The opportunity also included the option for on-site lodging accommodations for all three positions.

5.1 - The Response

The owner's list of wants and needs is dauntingly long especially when you consider their limited knowledge in operating an agritourism operation and what is required for farming within a forest and lake ecosystem. Still, they possess the drive to make their dream and legacy of TimBer Landing a success. Their enthusiasm and decisive planning to redevelop the land are strong and evident based on the due diligence they have accomplished so far. In addition to providing a comprehensive preliminary budget plan for all the major works to be done and phasing it out based on their immediate needs, they understand that operating on a scale that can easily turn into a business venture requires expertise and staff to manage and operate the proposed additions and programming to TimBer Landing. Since the landowners identified that commercializing the development to generate surplus of income, it raises the question, where does tourism come into play?

As defined early on, agritourism is about the experience of familiarizing oneself with farming activities and recreation in an agricultural environment. In its history, it was, however, a form of generating income to supplement cost, but the generation of income is not definitive to the experience. Furthermore, the approach to agritourism for this practicum has been about understanding its values and the opportunities it can offer to TimBer Landing regardless of how closely the outcome responds to the client's needs and desires. To that extent, this practicum addresses how to approach the design of the landscape and where the research can support the proposed design by identifying opportunities and reasoning. What is evidently clear is that the design for TimBer Landing must be a destination where family, friends, and the community can come together. The forest, clearing, and lake must be respected and integrated into the spatial design.



Figure 91. Aerial photo highlighting the beauty and relationship of the forest, clearing, and the lake



Figure 92. Vegetable garden established in 2021 to test the success of a garden in the clearing

CHAPTER 6 - SITE DESIGN

As outlined previously in the statement of intent, the overarching goal is to develop a design proposal for TimBer Landing, where agritourism activities can be fostered and celebrated. The proposal must integrate with the existing site conditions, be ecologically appropriate, and aim to enhance the site's biodiversity. With this in mind, five key functions are implemented in the design that respond to the client's needs and develop TimBer Landing as an agritourism destination, as shown below. It is important to note that generating revenue is not a priority for the landowners at this stage. However, it does not mean the proposed programming and design cannot generate revenue. It is the opposite because it envisions the clearing in its maximum capacity as a fully realized agritourism destination but is flexible in how much it can involve the wider community.

TRAIL SYSTEM: A trail system is proposed to integrate the forest, clearing, and lake. This trail can take visitors throughout the site, showcasing its natural beauty in all its forms throughout the year.

VINEYARD, WINERY & ORCHARD: The establishment of the vineyard, winery, and orchard is TimBer Landing's main attraction for the wider community agritourism experience.

LODGING: Lodging is provided for the owner's family and friends through cabins and a main lodge. When not used by the immediate family, these structures can be capitalized as rental vacation homes, serving as a potential revenue stream for the agritourism destination.

LAKE ACCESS: Provide access to the lake and amenities and features that foster a sense of community through shared experiences. These spaces are imagined as gathering areas for bonfires, BBQs, parties, and water-related activities.

AGRICULTURE: Introduce a wide range of agritourism activities, both active and passive. Passive agritourism activities occur where processed and raw goods are consumed/purchased, such as wines, jams, cut flowers, fresh produce, and lodging. Active agritourism activities involve working in the fields, such as picking produce, processing harvested products onsite, or participating in hands-on and onsite educational experiences.





6.1 Conceptual Design

At this scale, we see the site's complete design, which includes a trail system that integrates the forest, clearing, and lake; the clearings transformed into an orchard, vineyards, and fields for various gardening needs; and clusters of buildings for lodging and structures to allow access to the lake. Each element works together for a specific function in a system that provides lodging, cultivation, and a communal experience. The plan presented envisions the site at its capacity as a long-term viability of agriculture and tourism in the region. The design elements are designed to be implemented in phases, with the development of the clearing becoming the main focus in the first ten years and the destinations along the trail system within the following five to ten years.

The Clearing is the center of TimBer Landing's agritourism experience. The different gardens add layers of yield throughout the seasons and are designed to be part of the existing forest and lake ecosystem.

Creek Crossing is a modified bridge that provides seating and is considered the halfway point along the trail, perfect as a rest stop.

Observation Deck is an elevated platform to observe the beaver pond and all the animals that frequent the area.

Pine Point is a section along the southwestern shoreline dominated by coniferous trees. It provides a scenic view of the adjacent park and beautiful sunsets.

Maple Grove is a valley within the forest dominated by maple trees. The rocky terrain offers a challenge within the trail system, but the slopes are ideal for collecting maple sap through a gravity tube system.

Erin's Bluff is a cliff on the easternmost part of the site, overlooking Devil Lake and its surrounding landscape. It is the perfect location for sunrise.



0

300m

Figure 93. TimBer Landing conceptual design site plan (Original scale 1:2500)

6.2 Clearing Site Plan

The entire clearing is transformed into various gardens of cultivation from grapes, to fruits, vegetables, herbs and flowers. Each garden offers different opportunities without compromising the agritourist experience. A series of renovated and new structures support the landowner's desire to garden and accommodate friends, family, and the wider community: a marina, a winery, a greenhouse, and amenity structures like a spa and a mess hall.

Structures are clustered to emphasize the concept of community and maximize the garden areas and in response to existing infrastructure. The marina is a focal point for gathering, providing access to the lake and expanding TimBer Landing's capacity to be accessed from the lake. This area features a fire pit, a mess hall, and a float-house, essentially a floating boathouse with a roof deck. North of the marina are three larger structures, the main lodge, the existing farmhouse, which will house the groundskeeper and seasonal employees, and the winery with a small store and a wine garden. The smaller structures are the cabins and a spa/laundry facility. The road infrastructure includes sections 7m wide for two-way traffic, 4.5m for one-way traffic with room to pass, and 30 formal parking spots with overflow parking along Devil Lake Rd for large gatherings like weddings and harvest festivals.

Three vineyards cover roughly 2.6 acres, and their orientation indicates a different type of grape variety. This design choice creates interest and emphasizes views of other elements on the site with the trail system integrated within. There are 2 large field gardens, which will be used to grow vegetables, herbs, flowers, and fruiting shrubs. A greenhouse is introduced to complement the field gardens while catering to the owner's desire to have more exotic plants, such as small citrus trees. An enclosed composting area and a large shed with space to park larger equipment are also provided. The clearing to the north, surrounded by trees, is transformed into an orchard meadow.





Figure 94. TimBer Landing Clearing site plan (Original scale 1:1000)

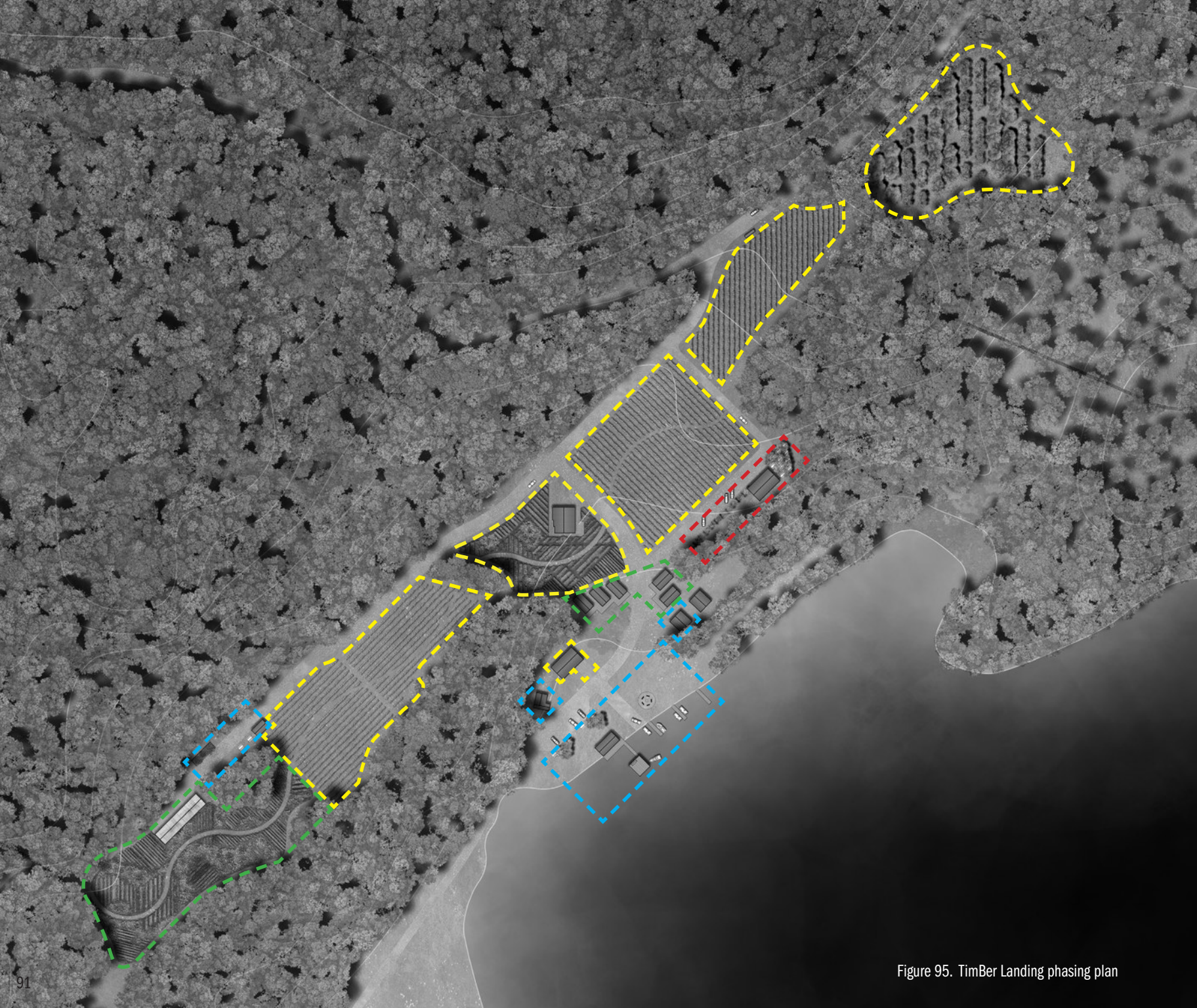


Figure 95. TimBer Landing phasing plan

6.3 Phasing Plan

A phasing plan is proposed due to the complexity and scale of the redevelopment of TimBer Landing. It is beneficial to phase the project because the design deals with vineyards and an orchard, which can take 5 -7 years to establish and produce at capacity. Additionally, a caveat to the proposed design and programming is that it assumes that as the owners and their immediate family get more experience and fully establish the agricultural components of the design, it would slowly transition into a fully commercialized agritourism destination offering a wide range of experiences from lodging, winery tour and tasting, and immersion in agricultural activities. At the core, whether the landowner and their family decide to limit the commercial capacity of TimBer Landing, the design transform the clearing into a garden of various types in a forest and lake ecosystem that celebrates yields. The spa/laundry facility and the farm stand are smaller features that can be constructed as needed. The RV park can also be reinstated anytime since the zoning is there, which can utilize the spa/laundry facility.

Phase 1, Year 1: Realign the road and begin establishing the vineyards, one of the field garden and orchard. Remove the cabins and boathouse in preparation for the new builds, such as the main lodge, in the first year.

Phase 2, Year 2: Once the main lodge has been completed, begin construction of the marina, including the mess hall, float house, boat launch, and docks. The renovation of the remaining existing cabins, farmhouse and the adjacent field garden, including the composting bays and garden shed, will be constructed at this stage.

Phase 3, Year 3-5: At this stage, the second field garden, greenhouse, and additional cabins will be constructed. There are five additional cabins, and they would be constructed as required within the third to fifth year.

Phase 4, Year 5-10: In the fifth year, the vineyards and orchards have started to produce significant yields, necessitating a proper facility to process and store the fruits.

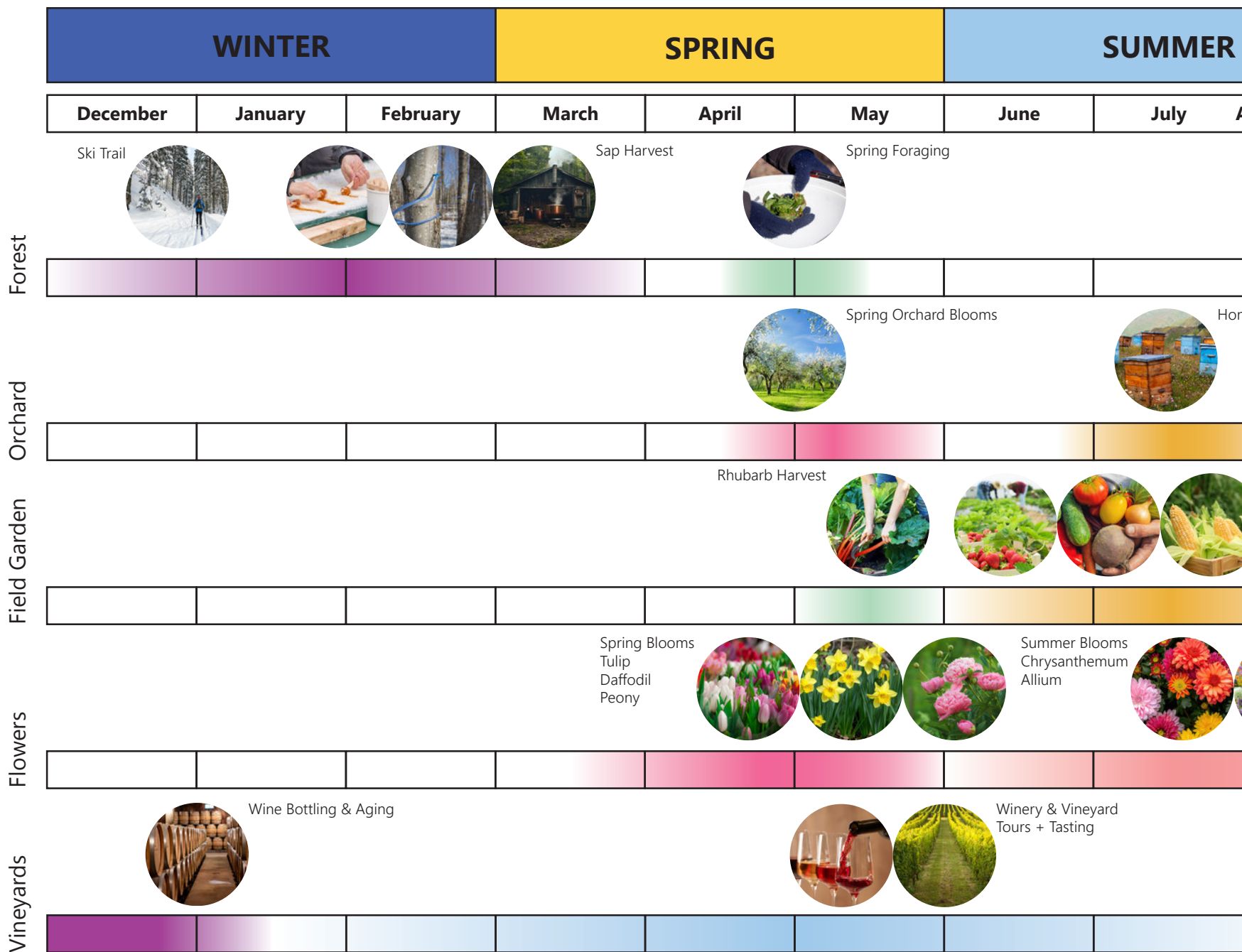
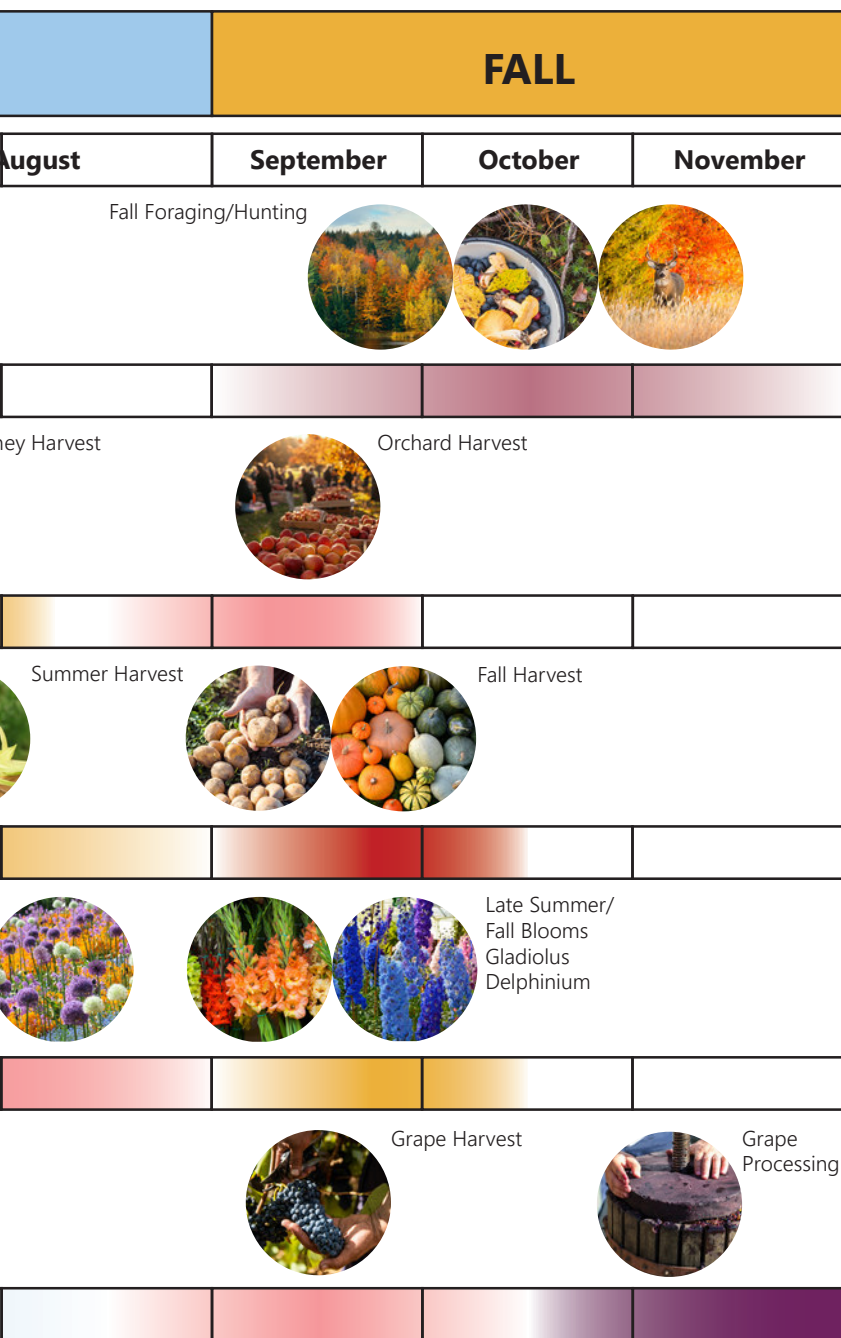


Figure 96. Seasonal calendar of yields in TimBer Landing



6.4 Yield Opportunities

Figure 121 illustrates cultivated and experiential yields we can expect from TimBer Landing throughout the year. No matter the season, there is always something to do, learn, see, hear, or taste, and this calendar can change depending on what is grown in the field gardens or new events that the landowners curate. The beauty of agritourism is that there is a higher chance of returning visitors because of the varied experiences it can have on people depending on the season and what is available to consume, be it the sight of flowers in the Orchard Meadow in the spring, picking flowers and harvesting honey in the summer, enjoying the forest views as the trees transition to fall colours or learning about the process of winemaking in the late fall into the winter months. Once the grapes have been pressed, fermented, and clarified, the process of making wine can be prolonged depending on how long the wine is aged, but it can be consumed as early as the following spring. Again, whether the owners limit the extent of agritourism activities by strictly focusing on the vineyard and winery operations, which is the core function related to agritourism in TimBer Landing, the infrastructure to expand their offerings is present. Furthermore, the owners can establish partnerships to develop and promote TimBer Landing as an agritourism destination through the Frontenac Arch Biosphere Reserve (FABR). Currently, the FABR has a program called Agri-Tourism Favourites, which establishes a network of existing agritourism destinations in the region aiming to introduce visitors to agriculture that is based on fostering a relationship with our ecosystems through the protection and enhancement of natural processes and regenerative practice.¹

1 Frontenac Arch Biosphere. 2023.



GRAVEL ROAD

EXST. FOREST

DEVIL LAKE RD

A

AP

AP

CH

CH

AP

AP

PL

EXST. FOREST

6.5 Orchard Meadow

The orchard is designed to be more than a garden for cultivating fruits. It emphasizes that an orchard's understory can be more productive for people and wildlife, offering unique experiences that differ from the typical orchard. The emergence of a meadow is achieved through reduced mowing and a management regime throughout the year to encourage the growth of grasses, herbs and wildflowers. One to two mowings a year is all that would be required, with one being at the start of the fall harvest to provide easier access to the orchard trees. The existing trees create a micro-climate of warmer temperatures in the winter months as they create a shelterbelt from cold fronts and allow for a wider range of hardy-fruiting trees to be grown. Furthermore, taking advantage of the meadow, colourful towers of beehives are introduced to add another layer of yield and ecology to the orchard meadow.



Figure 97. Orchard Meadow site plan (Original scale 1:200)

DEVIL LAKE RD

EXST. FOREST

TYP. 8m





Figure 98. Orchard Meadow A-B section



Figure 99. P1 - The Orchard Meadow depicted in the late summer right before the fall harvest





MICHAELS LN

TRAIL

GRAVEL ROAD

VINEYARD 2

P1 ->

WINERY

ANGLED
PARKING

6.6 Vineyard Winery

The winery's placement and design are central to TimBer Landing's function as an agritourism destination. It is the first structure seen when entering the clearing, and it is focused on providing visitors with the opportunity to learn about the process of making wine. The site includes a small storefront and a wine garden with seating areas under tree canopies overlooking the vineyard and the forest. The three sections of the vineyard total roughly 2.7 acres and can produce 4-6 tonnes of grapes on average before over-cropping, which begins to impact wine quality.¹ On average, one ton of grapes can produce 750 bottles of wine, and with 3 vineyards, 3 varieties of grapes can be grown, such as Baco Noir, a cultivar native to the North American riparian forest, Pinot Gris and Chardonnay. These three are considered core varieties for the Canadian wine industry, and a report in 2023 stated a need to increase yield to meet increasing demands.² The winery also doubles as a facility to process the sap from the Maple Grove that would be harvested in the fall or early spring.

1 Ministry of Agriculture, Food and Rural Affairs. 2022.

2 Rob Gamble. 2023.



Figure 100. Vineyard Winery site plan (Original scale 1:200)

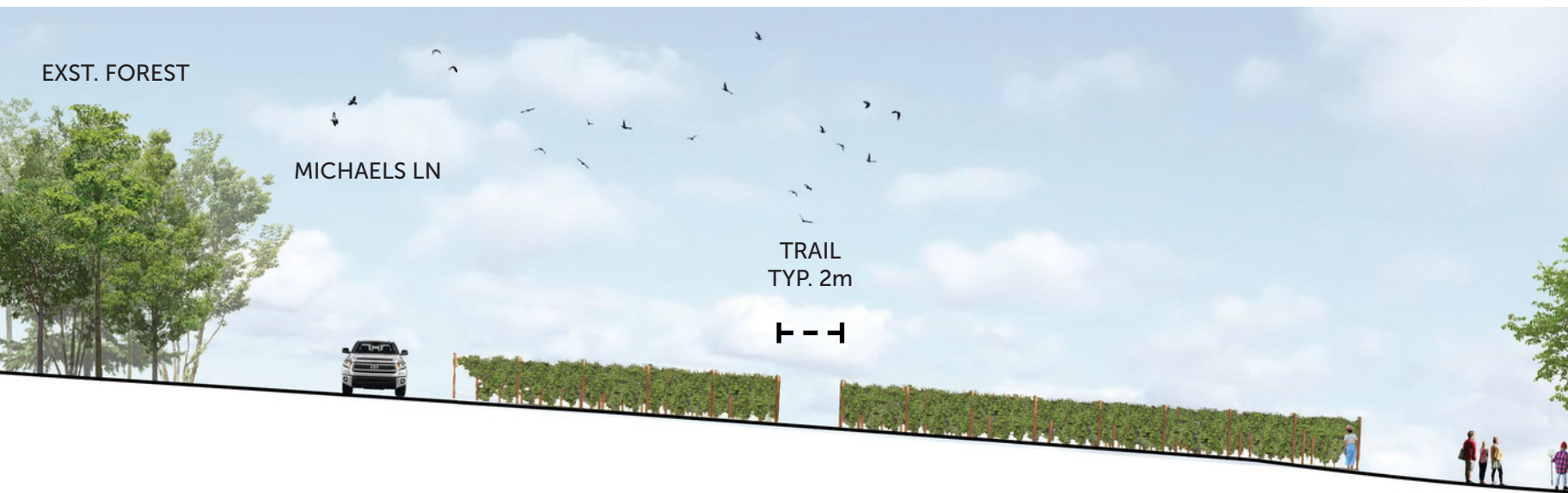


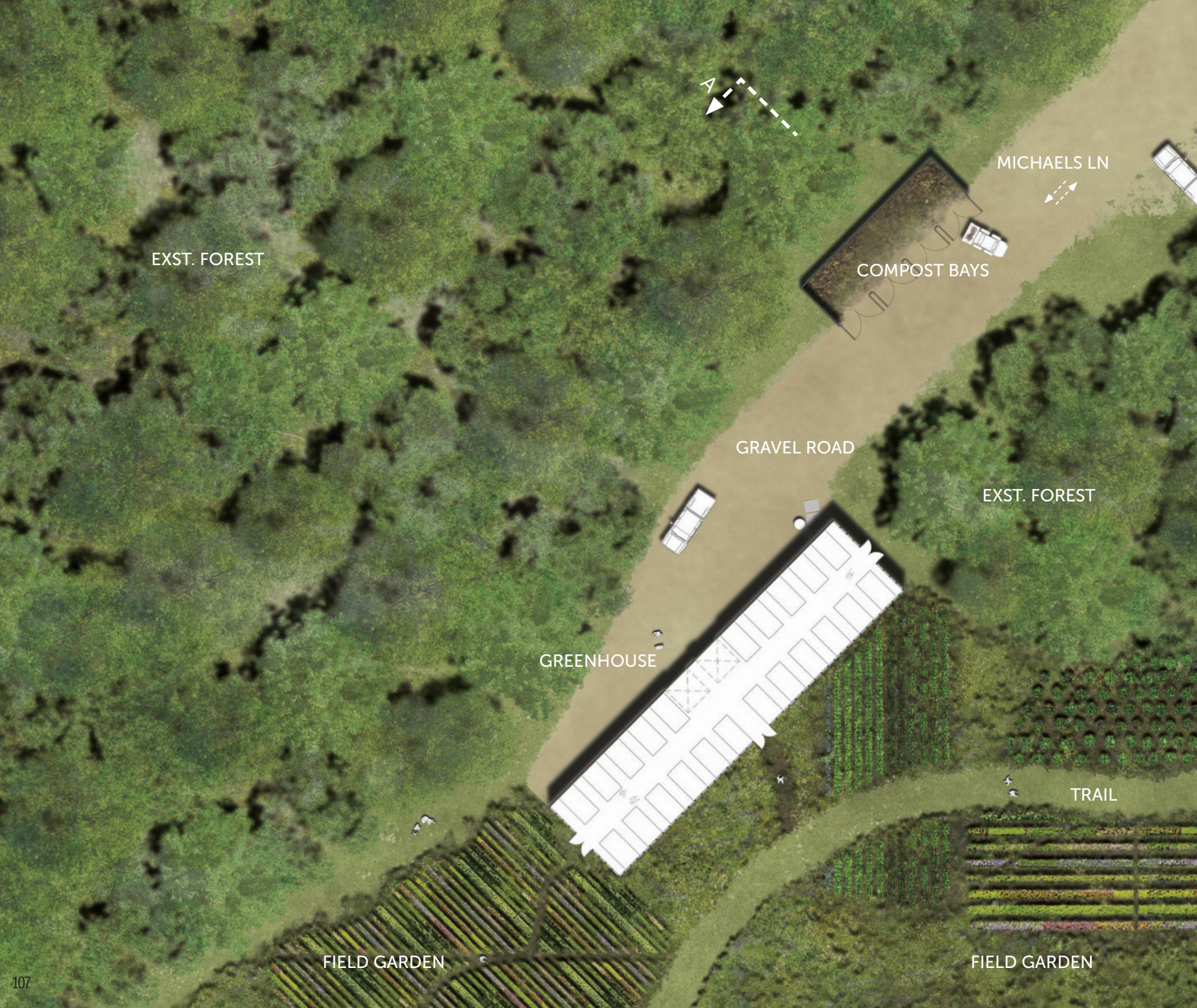


Figure 101. Vineyard Winery A-B section





Figure 102. P1 - Imagining the winery in full swing as visitors wait outside before their tour



EXST. FOREST

MICHAELS LN

COMPOST BAYS

GRAVEL ROAD

EXST. FOREST

GREENHOUSE

TRAIL

FIELD GARDEN

FIELD GARDEN



6.7 Field Gardens

The Field Garden refers to two large sections of the clearing prepared for various gardening purposes, whether the landowners and their families want to plant vegetables, herbs, berries, or all kinds of flowers. Contemporary gardens are typically arranged in plots, and the plants are orderly. In contrast, the field gardens are organic in shape, and the plant spacing allocation is a mixture of rows and randomness to create interest. The reasoning is to encourage the landowners to apply permaculture in managing TimBer Landing, similar to the treatment of the orchard meadow, where there is added value to the ecosystem services by changing how we approach landscape maintenance. Water supply for the many cabins in the region previously utilized lake water for potable and non-potable use. Currently, people and communities of the Cataraqui region depend mostly on groundwater from bedrock wells.¹ Depending on the current level and quality of surface water, the clearing can utilize a combination of lake water and groundwater for watering the gardens without overwhelming the hydrological cycle and the lake ecosystem. The added benefit of the clearing being transformed into a garden is that it directly impacts both ground and surface water quality through the filtration of contaminants, reduction of surface run-off and flooding.

¹ CRCA. 2023.

EXST. FOREST

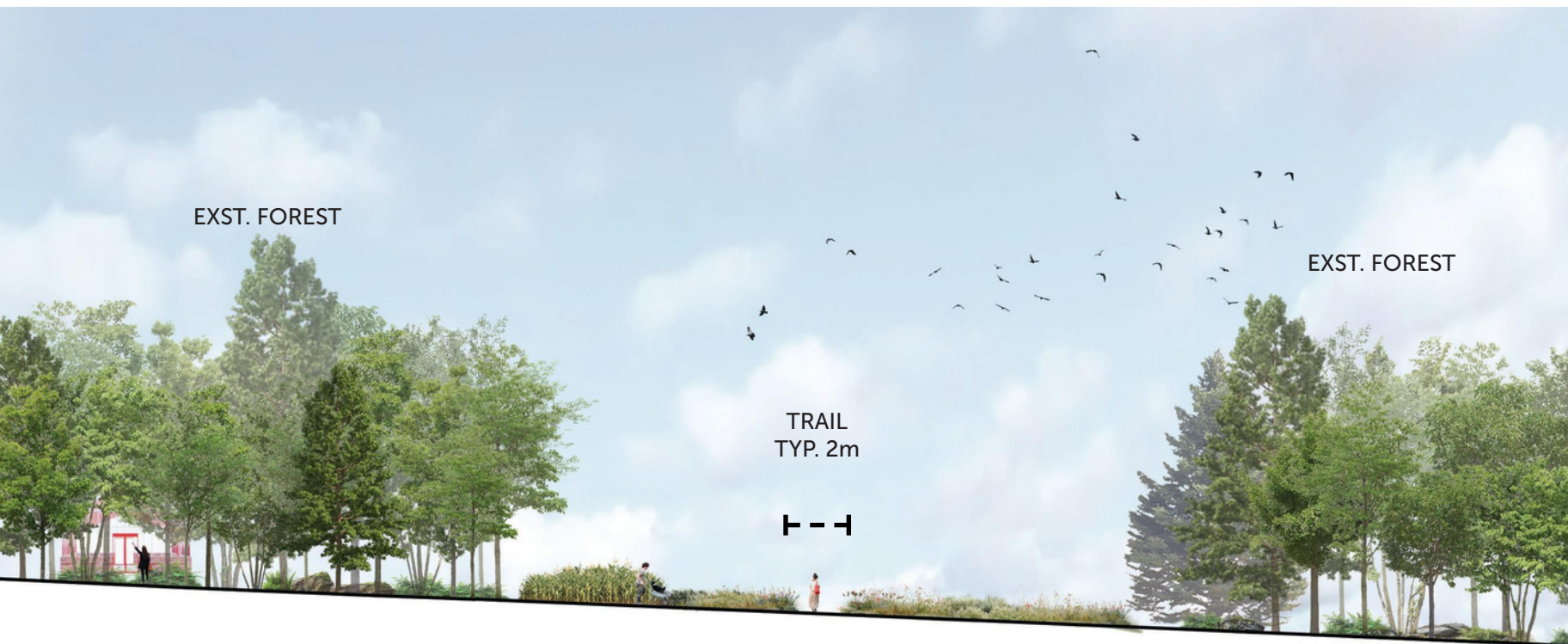


0

30m

Figure 103. Field Garden site plan (Original scale 1:200)





0



300m

Figure 104. Field Garden A-B section



Figure 105. P1 - The Field Garden depicted during the summer months as visitors explore the site



6.8 Trail System & Nodes

The following plans, sections, and perspectives displayed are the vision for Timber Landing at its capacity. While the main focus of development is the clearing for the first ten years, the development of the trail nodes will occur once the clearing has been developed. A walking trail system exists but has been expanded and adjusted to integrate the designed spaces and show visitors the wonders of the site. The kinds of investments portrayed, except Maple Grove, would be constructed within ten to twenty years when a steady flow of visitors can offset the cost. The proposed nodes along the trail system are designed to be bold and deliberate spaces that contrast the soft natural environment and emphasize that it is a destination. The size, quantity and frequency of site furniture and the two structures are based on the assumption that groups of people would use the trail throughout the day, whether it is the owner and their families going on a nature walk or groups of visitors coming for a tour of the winery and all that TimBer Landing has to offer. The walking trail is proposed to be used throughout the year, with snowshoeing or cross-country skiing as the preferred activities in the winter months. Local crushed granite is proposed within the forest to help delineate the trail. Weathering steel is proposed for the custom site furniture and structure to contrast the forest's natural colours and the wood planks' hues from brown to grey as it ages.



Crushed Granite



Weathered Steel



PT Wood Planks

Trail and Node Material

Figure 106. Proposed trail materials



Figure 107. Trail system site plan

Pine Point

Pine Point is a node best for lounging under the tree canopy as the cool breeze from the lake sweeps across the forest floor and viewing sunsets. The pathway gets wider around the bend to open up the space and provide five pieces of furniture to accommodate ten adults on average. The furniture are positioned to give a panoramic view across the lake towards the northern portion of the provincial park.

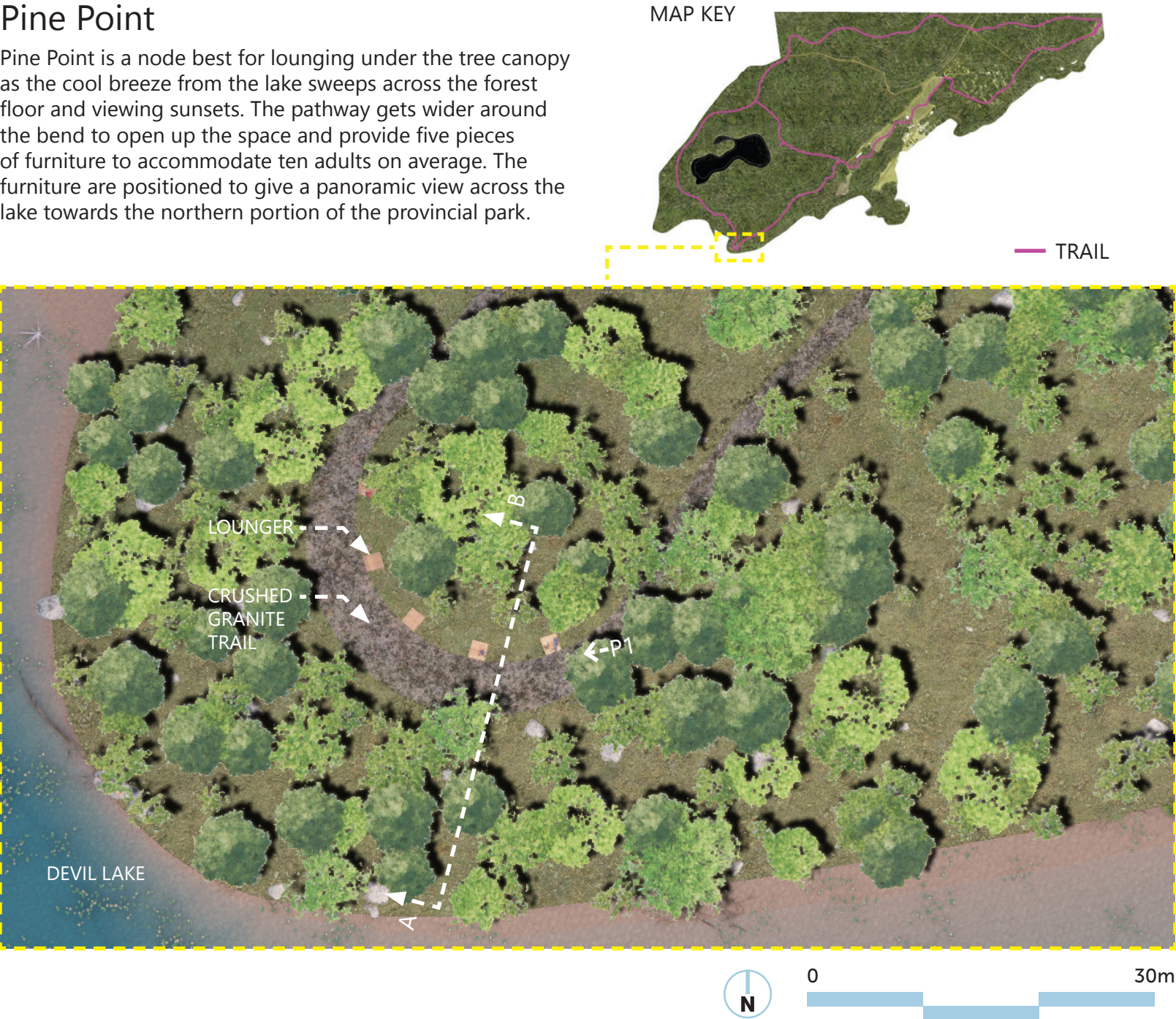


Figure 108. Pine Point site plan (Original scale 1:200)



Figure 109. P1 - The trail through Pine Point and proposed loungers

DEVIL LAKE

SEATING AREA

EXST. FOREST

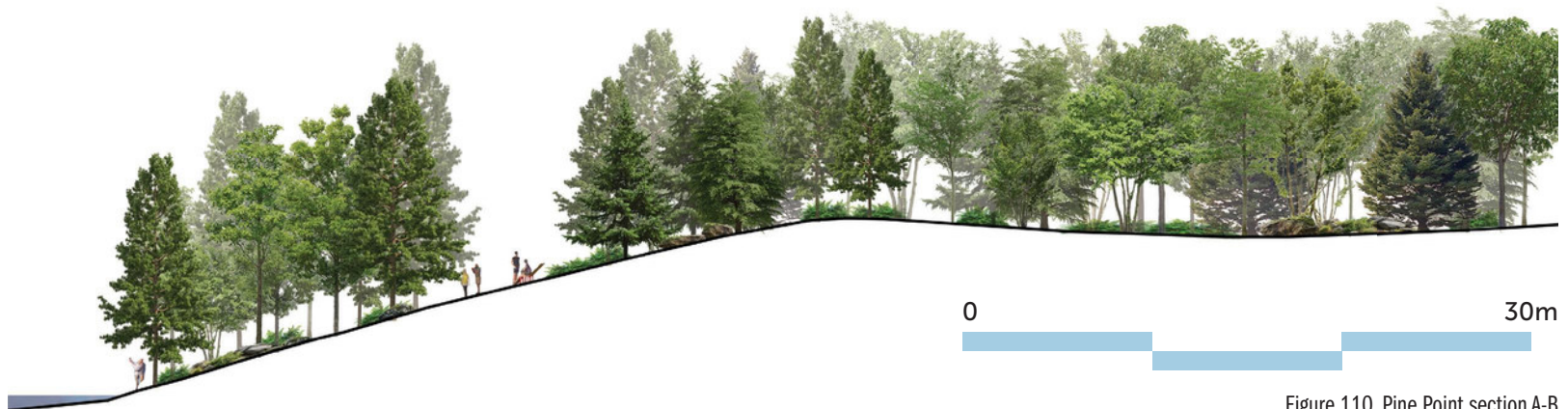


Figure 110. Pine Point section A-B



Figure 111. P1 - The vista created by the Observation Deck

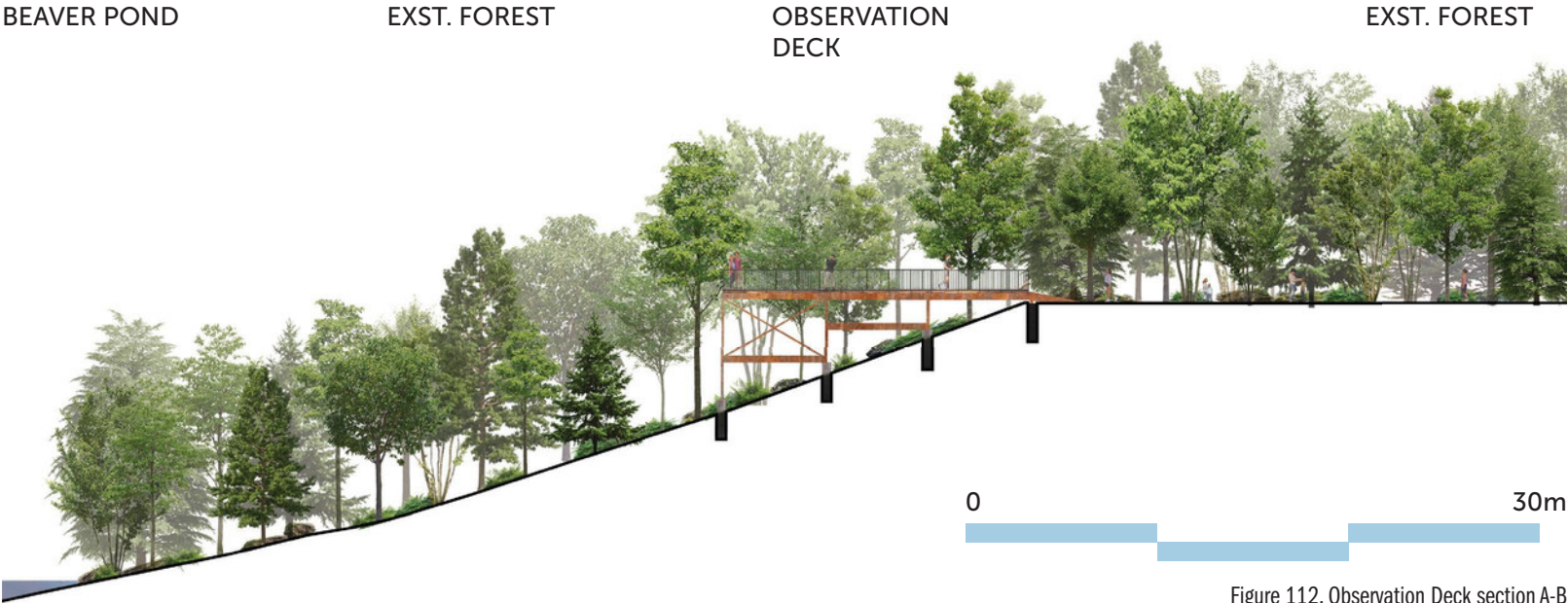


Figure 112. Observation Deck section A-B

Observation Deck

The Observation Deck is a node that takes full advantage of the existing elevations to create a vista through the dense forest canopy into the beaver pond. While the deck is roughly six meters above grade at the highest point, it sits fifteen meters above the pond surface due to the elevation change. The node is situated outside a thirty-meter setback and is a great location for watching animals from a range of small to large mammals, local bird species, and hundreds of migratory birds that travel through the nature reserve.

MAP KEY

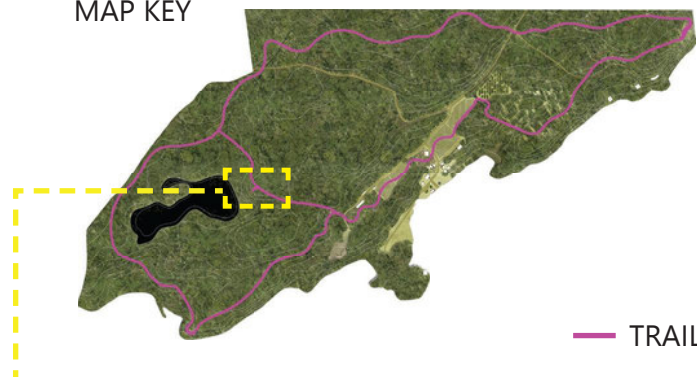


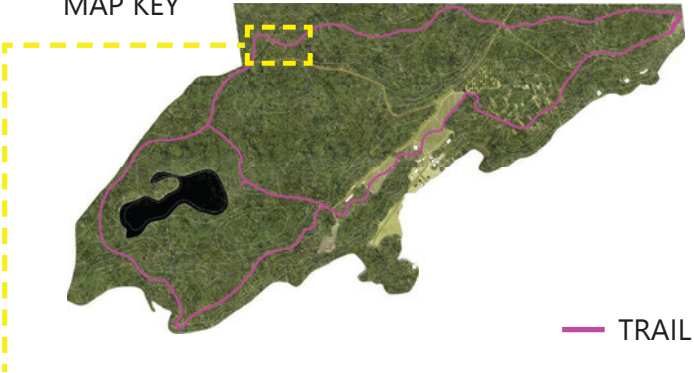
Figure 113. Observation Deck site plan (Original scale 1:200)

Creek Crossing

While the trail crosses the creek at other locations, this node is situated where the slopes are more gradual, creating a 360° view of the forest understory and the meandering creek that cuts through the site. The modified bridge incorporates seating and a section of metal grates to view the water below. It is the halfway point of the trail and the node can even host a small wedding ceremony or perhaps a meeting point for a lunch break for kids on a field trip.



MAP KEY



TRAIL



Figure 114. Creek Crossing site plan (Original scale 1:200)



Figure 115. P1 - This view highlights the placement of the metal grate section allowing visitors to view the creek below

EXST. FOREST

MODIFIED BRIDGE

EXST. FOREST



0

30m

Figure 116. Creek Crossing section A-B

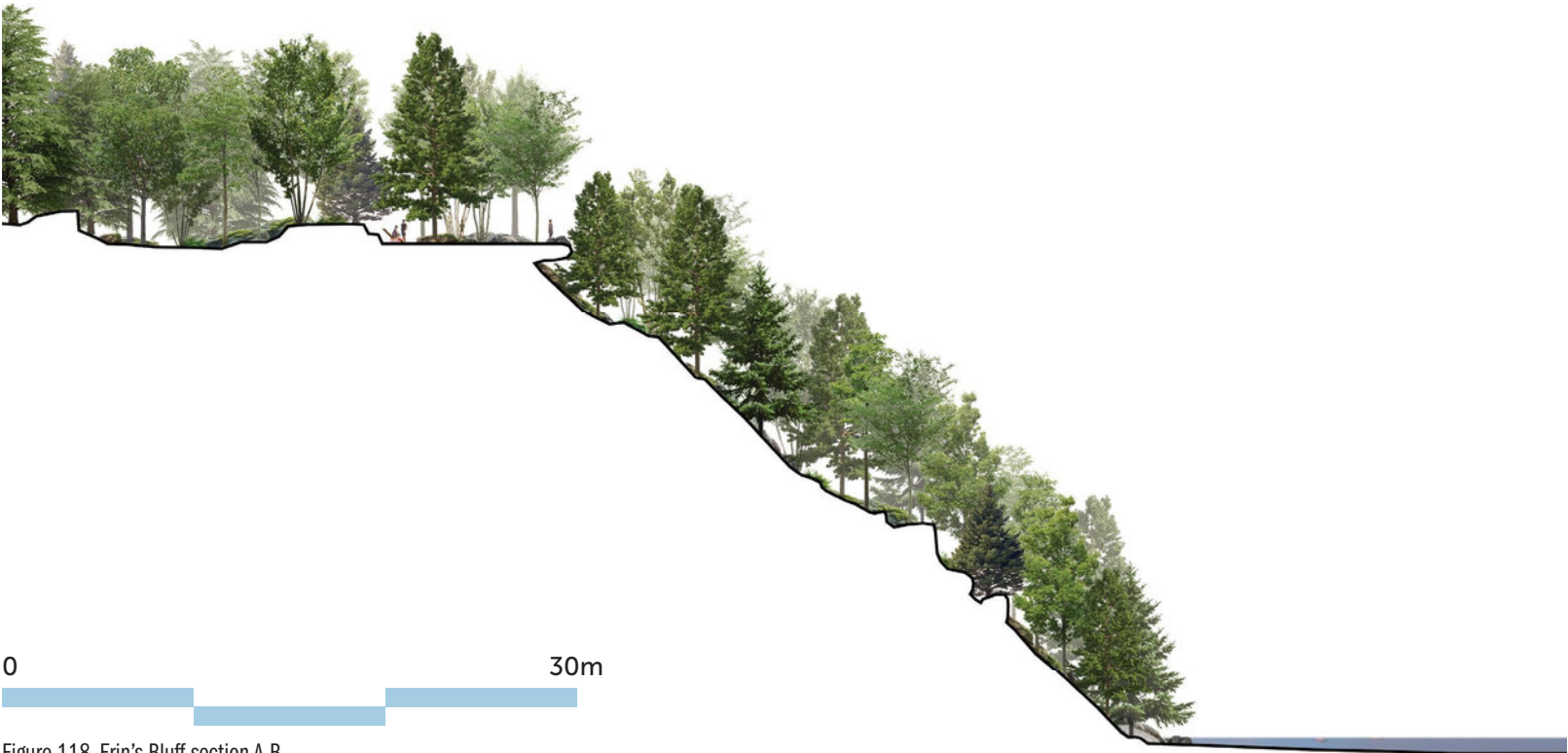


Figure 117. P1 - Path through Erin's Bluff and the proposed benches

EXST. FOREST

ERIN'S BLUFF

DEVIL LAKE



0

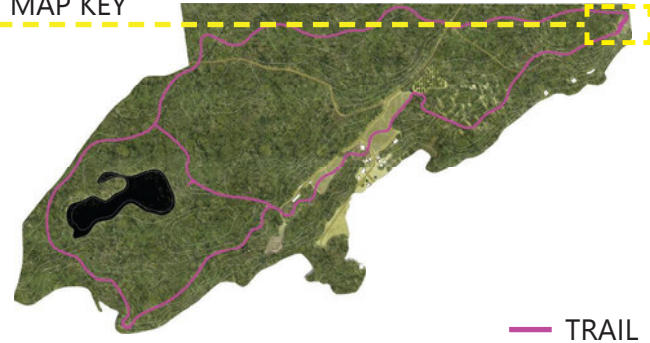
30m

Figure 118. Erin's Bluff section A-B

Erin's Bluff

The node Erin's Bluff is already great, and the introduction of the trail system, which facilitates faster and safer navigation and provides seating options in addition to the rocks at the top, enhances it further. The name comes from Tim and Beryle's oldest daughter, who, prior to this practicum, has capitalized on this opportunity by geolocating and naming the node via Google Maps. This node is great for viewing sunrises and the expansive forest and lake ecosystems.

MAP KEY



— TRAIL

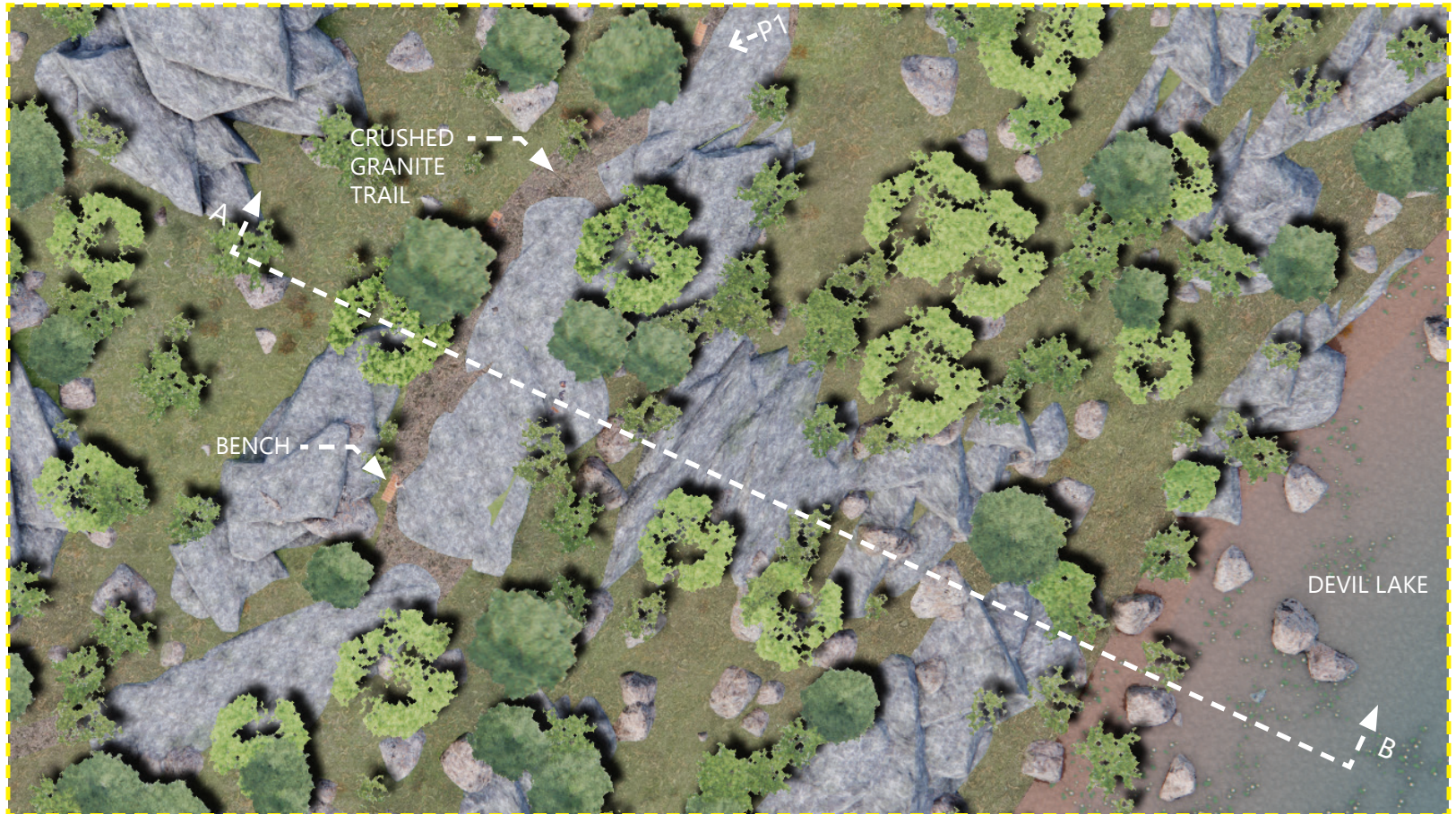


Figure 119. Erin's Bluff site plan (Original scale 1:200)

Maple Grove

Maple Grove is the largest node, essentially a valley of maple trees. Because of the change in elevation and the dominance of maple trees, this section of the forest is ideal for collecting maple sap through a gravity tube system for maple syrup or ingredients for wine and beer. To encourage the growth of existing and new maple trees, this section of the forest, about 150m in diameter, will be maintained and thinned, removing existing and future non-maple tree saplings. Where the other nodes are more of a destination, this space is best experienced as you move through the forest and truly activates as a destination in the fall when the vibrant colours of the trees emerge.

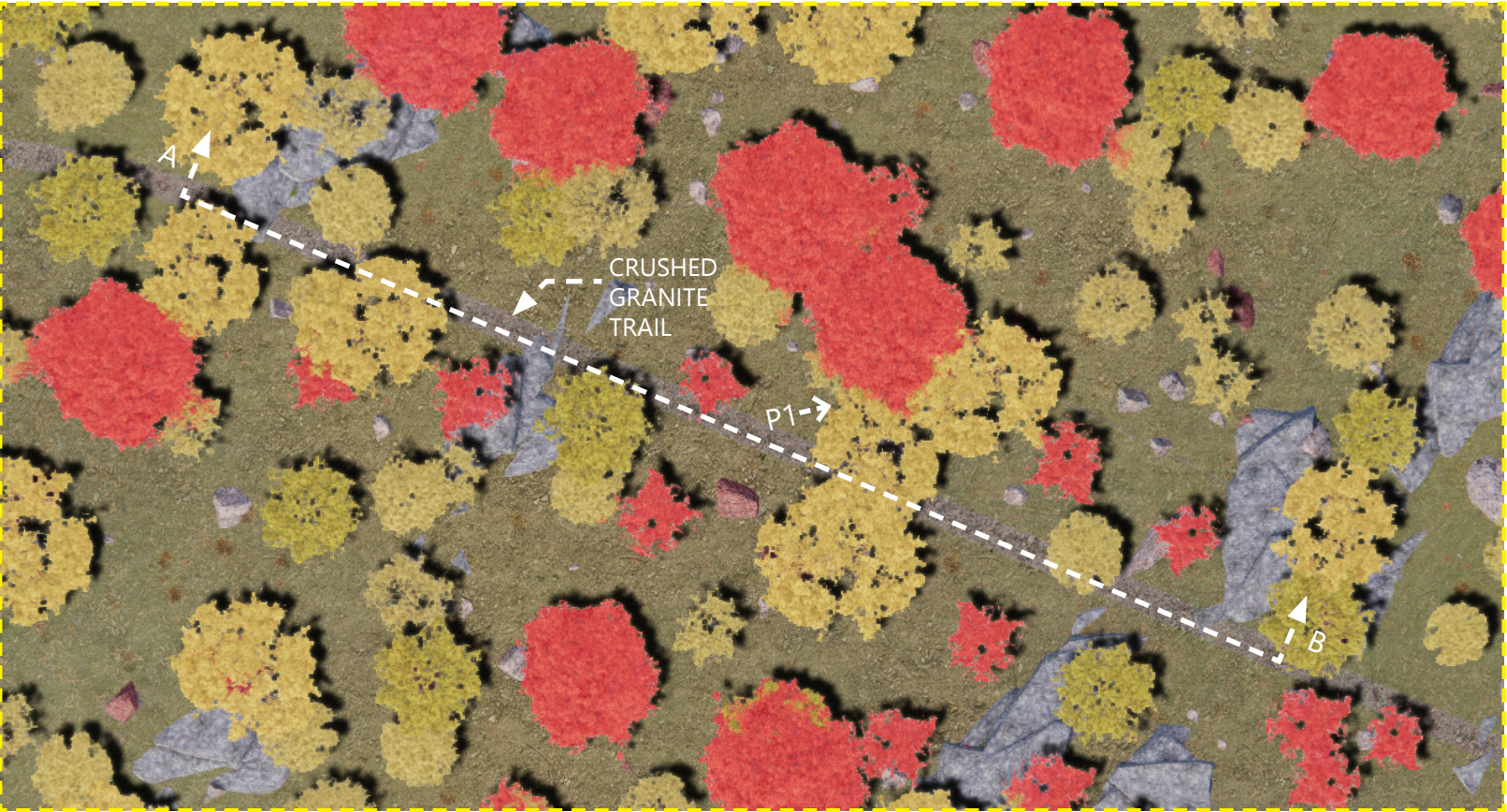
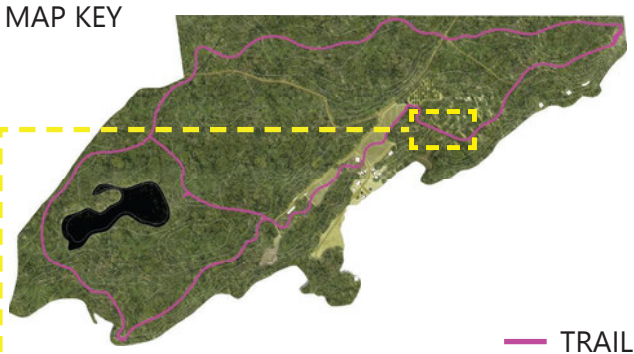


Figure 120. Maple Grove site plan (Original scale 1:200)



Figure 121. P1 - Installation of the gravity tube tapping system in the fall time

EXST. FOREST

SAP COLLECTION POINT

EXST. FOREST



Figure 122. Maple Grove section A-B

YIELD - Conclusion

This journey has taken me to places I never imagined visiting. I have met some of the most interesting people whose passion and earnest desires have fueled my passion for landscape architecture, design, and agriculture. Previously I considered agriculture to be this entity that characterizes the rural landscape and is associated with poverty and an uninteresting life. This notion resonated with me growing up because I was always told to study and work hard so that I did not have to struggle like my parents, who come from farming families with very little. Although life was not easy, especially for my parents, I had a good childhood and very much enjoyed my experiences with agriculture. Understanding what I know now and what I have gained from this experience is that there is much to celebrate about agriculture and cultivating the land. Abundance takes form in many ways, and experiences like growing your food or having that knowledge and appreciation can go a long way in a world where people are far removed from the time and effort it takes to have the food we eat. The opportunity to work on a practicum centred around agritourism was a thrilling, humbling experience, and I applaud farmers and

gardeners. The success of agritourism is because people get to experience and reconnect with the joys of agriculture. The task of transforming TimBer Landing for agritourism was a challenge. It required a deep understanding of the landscape, from the provincial scale to the site-specific nuances, and a keen sense of contemporary agritourism through experience and knowledge. The resulting design is cautious of the existing context, yet the proposed systems operate to integrate the forest, clearings, and lake. The owner's needs and desires were addressed, and it was a big help in the design process. Still, there was flexibility for opportunities to challenge their preconception of the site and agritourism to truly design something unique and specific to the site's context. At the core of the design is a commitment to cultivating knowledge and passion and promoting the importance of agriculture through tourism. Whether the owners choose to maintain TimBer Landing as a personal working farm or develop it into a fully realized agritourist destination, this practicum design is the result of celebrating agricultural yields, guided by a vision for family, friends, and the wider community through gardens of agritourism.

Figure 123. The landscapes and playground of my childhood, Paing, Bantay, Ilocos Sur, Philippines



References

- Adamov, T. et al. 2020. Sustainability of Agritourism Activity. Initiatives and Challenges in Romanian Mountain Rural Regions. Sustainability (Basel, Switzerland). [Online] 12 (6), 2502-.
- Alar, S. S. 2024. Agritourism in Central Luzon, Philippines: Status, Challenges, and Pathways to Sustainable Growth. Philippine social science journal (University of Negros Occidental-Recoletos- Online). [Online] 6 (3), 63–71.
- Ameztegui, A. et al. 2021. Forest expansion in mountain protected areas: Trends and consequences for the landscape. Landscape and urban planning. [Online] 216104240-.
- Amoroso, Nadia. Representing Landscapes. 1st ed., Taylor & Francis Group, 2024.
- Anon. 1974. Report on water quality in Devil Lake, Frontenac County. Ontario Ministry of the Environment, Conservation and Parks Queen's Printer for Ontario.
- Anon. 2002. Designation of the Thousand Islands Frontenac Arch Biosphere Reserve. Ottawa: PR Newswire Association LLC.
- Anon. 2004. Minister Dion Announces Federal Contribution to the Thousand Islands - Frontenac Arch Biosphere Reserve. Ottawa: PR Newswire Association LLC.
- Aranya. 2012. Permaculture design: a step-by-step guide. Hampshire, England: Permanent Publications.
- Barbieri, C. 2013. Assessing the sustainability of agritourism in the US: a comparison between agritourism and other farm entrepreneurial ventures. Journal of sustainable tourism. [Online] 21 (2), 252–270.
- Bartlett, M. K. & Sinclair, G. 2021. Temperature and evaporative demand drive variation in stomatal and hydraulic traits across grape cultivars. Journal of experimental botany. [Online] 72 (5), 1995–2009.
- Billionnet, Alain. 2021. Designing optimal protected area networks. [Online]. Les Ulis: EDP Sciences.
- Cantrell, Bradley, and Wes Michaels. Digital Drawing for Landscape Architecture : Contemporary Techniques and Tools for Digital Representation in Site Design. John Wiley & Sons, 2010.
- Cataraqui Region Conservation Authority (CRCA). 2023. [Online]. Available at: <https://cataraquiconservation.ca/pages/policies-guidelines> [Accessed 7 November 2023].
- Cohen, M. & Danby, R. K. 2023. Woody plant encroachment in granite barrens on the Frontenac Arch, eastern Ontario, Canada. Applied vegetation science. [Online] 26 (2).
- Crispin Colvin. 2023. Reports show agritourism activities ripe for growth in Ontario. Ontario Federation of Agriculture, [Online] Available at: <https://ofa.on.ca/newsroom/reports-show-agritourism-activities-ripe-for-growth-in-ontario/> [Accessed 12 April 2024].
- Di Bene, C. et al. 2022. EPIC model simulation to assess effective agro-ecological practices for climate change mitigation and adaptation in organic vegetable system. Agronomy for sustainable development. [Online] 42 (1).
- Dong, J. et al. 2020. Sustainable vegetable production under changing climate: The impact of elevated CO2 on yield of vegetables and the interactions with environments-A review. Journal of cleaner production. [Online] 253119920-.

- Drew, C. Ashton. et al. (eds.). 2011. Predictive Species and Habitat Modeling in Landscape Ecology Concepts and Applications. 1st ed. 2011. [Online]. New York, NY: Springer New York.
- Frontenac Arch Biosphere. 2022. Natural History. [online] Available at: <https://frontenacarchbiosphere.ca/science/natural-history/> [Accessed 2 November 2023].
- Frontenac Arch Biosphere. 2023. About Us. [online] Available at: <https://frontenacarchbiosphere.ca/about-fabn/> [Accessed 2 November 2023].
- Frontenac Arch Biosphere. 2023. People and Natural In Balance. [online] Available at: <https://frontenacarchbiosphere.ca/> [Accessed 2 November 2023].
- Gao, J. et al. 2014. Agricultural Landscape Preferences: Implications for Agritourism Development. *Journal of travel research*. [Online] 53 (3), 366–379.
- Gil Arroyo, C. et al. 2013. Defining agritourism: A comparative study of stakeholders' perceptions in Missouri and North Carolina. *Tourism management* (1982). [Online] 3739–47.
- Government of Canada. 2013. National Ecological Framework (2 of 23). [online] Available at: <https://sis.agr.gc.ca/cansis/nsdb/ecostrat/1999report/overview.html> [Accessed 18 October 2023].
- Grillini, G. et al. 2023. Differences in sustainability outcomes between agritourism and non-agritourism farms based on robust empirical evidence from the Tyrol/Trentino mountain region. *Journal of rural studies*. [Online] 104103152-.
- Haley Bilokraly. 2023. How to Start an Agri-Tourism Venture. Small Farm Canada, [Online] Available at: <https://www.smallfarmcanada.ca/news/how-to-start-an-agri-tourism-venture/> [Accessed 28 December 2023].
- Henderson, P. J. 1988. Sedimentation in an esker system influenced by bedrock topography near Kingston, Ontario. *Canadian journal of earth sciences*. [Online] 25 (7), 987–999.
- Higano, Y. et al. (eds.). 2021. Rural-urban dichotomies and spatial development in Asia. Gateway East, Singapore: Springer.
- J. E. Gillespie, R. E. Wicklund, and B. C. Matthews. 1966. The Soils of Frontenac County . [pdf] Canada Department of Agriculture & Ontario Department of Agriculture. Available at: [ichrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://sis.agr.gc.ca/cansis/publications/surveys/on/on39/on39_report.pdf](https://sis.agr.gc.ca/cansis/publications/surveys/on/on39/on39_report.pdf) [Accessed 6 November 2023]
- Jones, N. K. 2012. influence of recent climate change on wine regions in Quebec, Canada. *Journal of wine research*. [Online] 23 (2), 103–113.
- Köck, G. 2015. Report of the EuroMAB Conference 2013, "Engaging our Communities", Frontenac Arch Biosphere Reserve, Brockville (Ontario, Canada), 15–19 October 2013. *Eco.mont*. [Online] 6 (2), 53–54.
- Lord, James A., et al. *Surfacedesign : Material Landscapes*. Monacelli Press, 2019.
- Mackey, B. G. et al. 1996. Site regions revisited: a climatic analysis of Hills' site regions for the province of Ontario using a parametric method. *Canadian journal of forest research*. [Online] 26 (3), 333–354.

Marsat, J.-B. et al. 2013. Designing a Regional Policy of Agrotourism – The Case of Auvergne Region (France). European countryside. [Online] 5 (4), 308–321.

Ministry of Agriculture, Food and Rural Affairs. 2019. Establishment & Production Costs for Grapes in Ontario. [online] Available at: https://grapegrowersofontario.com/media/24bjndie/2019_grape_cost_of_production.pdf [Accessed 9 December 2023].

Ministry of Agriculture, Food and Rural Affairs. 2022. Impact of grape yield on wine quality. [online] Available at: <https://www.ontario.ca/page/impact-grape-yield-wine-quality> [Accessed 9 December 2023].

Nature Conservancy of Canada. 2023. Frontenac Arch. [online] Available at: <https://www.natureconservancy.ca/en/where-we-work/ontario/featured-projects/frontenac-arch.html> [Accessed 2 November 2023].

Ontario Ministry of Natural Resources. 2010. Natural Heritage Reference Manual Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. Toronto: Queen's Printer for Ontario. 248 pp.

Ontario Ministry of Natural Resources (OMNR). 2021. Cervid Ecological Framework. [Online] Available at: <https://www.ontario.ca/page/cervid-ecological-framework#section-8> [Accessed 1 March, 2024].

Ontario Ministry of Natural Resources (OMNR). 2022. Framework for Enhanced Black Bear Management in Ontario. [Online] Available at: <https://www.ontario.ca/page/black-bear-management-framework> [Accessed 1 March, 2024].

Ontario Ministry of Natural Resources (OMNR). 2024. Ontario Hunting Regulations Summary. [Online] Available at: <https://www.ontario.ca/document/ontario-hunting-regulations-summary> [Accessed 1 March, 2024].

Peira, G. et al. 2021. Rural tourism destination: The ligurian farmers' perspective. Sustainability (Basel, Switzerland). [Online] 13 (24), 13684-.

Porcal-Gonzalo, M. C. 2023. Exploring the heritage dimension of vineyard landscapes based on a critical approach to their inscription on the World Heritage List. International journal of heritage studies : IJHS. [Online] 29 (7), 643–663.

Prairie Climate Centre. 2019. The Climate Atlas of Canada Vers. 2. [Online]. Available at: <https://climateatlas.ca> [Accessed 2 December 2023].

Sanford, B. V. 1993. Stratigraphic and structural framework of upper Middle Ordovician rocks in the Head Lake-Burleigh Falls area of south-central Ontario. Géographie physique et quaternaire. [Online] 47 (3), 253–268.

Sarmiento-Mateos, P. et al. 2019. Designing protected areas for social-ecological sustainability: Effectiveness of management guidelines for preserving cultural landscapes. Sustainability (Basel, Switzerland). [Online] 11 (10), 2871.

Sayson, K. 2023. R.A.W. Reaping Agricultural Wealth: From Farm To Plate. [Unpublish work] [PDF] Available upon request.

Schultz, C. 2019. Protect the Frontenac Arch. Vol. 59. Toronto: Federation of Ontario Naturalists.

Slocum, S. L. & Curtis, K. R. 2017. Food and agricultural tourism: theory and best practice. London; Routledge.

Solankey, S. S. & Kumari, M. (eds.). 2023. Advances in research on vegetable production under a changing climate. Volume 2. 1st ed. 2023. [Online]. Cham, Switzerland: Springer.

South Frontenac. 2024. Zoning By-laws. [Online]. Available at: https://www.southfrontenac.net/en/open-for-business/resources/Planning-and-Development/May-2023---ComprehensiveZBL2003-75_Consolidated-with-Appendices.pdf [Accessed 2 April 2024].

Storey, K. B. (Kenneth B.) & Tanino, K. K. (eds.). 2012. Temperature adaptation in a changing climate : nature at risk. Wallingford, Oxfordshire, UK: CABI.

Strelcová, Katarína. et al. (eds.). 2009. Bioclimatology and Natural Hazards. 1st ed. 2009. [Online]. Dordrecht: Springer Netherlands.

Sullivan, Chip. Field Sketching for Environmental Designers. 1st ed., Routledge, 2024, <https://doi.org/10.4324/9781003214427>.

The Canadian Council on Ecological Areas (CCEA), 2023. About the CCEA. [online] Available at: <https://ccea-ccae.org/about-the-ccea/> [Accessed 18 November, 2023].

Torres, R. Maria. & Momsen, J. Henshall. 2011. Tourism and agriculture: new geographies of consumption, production and rural restructuring. London; Routledge.

UNESCO. 2023. MAB. [online] Available at: <https://www.unesco.org/en/mab?hub=66369> [Accessed 3 November 2023].

University of Toronto. 2024. Map and Data Library – 1954 Air Photos of Southern Ontario. [Online]. Available at: <https://mdl.library.utoronto.ca/collections/air-photos/1954-air-photos-southern-ontario/index> [Accessed 3 April 2024].

Van Drunen, S. G. et al. 2022. Flower plantings promote insect pollinator abundance and wild bee richness in Canadian agricultural landscapes. Journal of insect conservation. [Online] 26 (3), 375–386.

Wester, M.C., B.L. Henson, W.J. Crins, P.W.C. Uhlig and P.A. Gray. 2018. The Ecosystems of Ontario, Part 2: Ecodistricts. Ontario Ministry of Natural Resources and Forestry, Science and Research Branch, Peterborough, ON. Science and Research Technical Report TR-26. 474 p. + appendices.

Wiken, E.B. n.d. Ecological Framework of Canada [online] Available at: <http://www.ecozones.ca/english/region/133.html> [Accessed 3 November 2023].

Yadav, S. S. (Shyam S.). 2015. Crop wild relatives and climate change. 1st ed. Robert Redden (ed.). Hoboken, New Jersey: Wiley Blackwell.

Image References

Figure 96. Seasonal calendar of yields in TimBer Landing
Adam. "Bielice - Cross Country Ski Paradise." Adobe Stocks, 2016. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 14 November 2024].

AkuAku. "Daffodils of a yellow hue flourished in the garden." Adobe Stocks, n.d. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Allgaier, Peter. "Zierlauch." Adobe Stocks, 2011. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Andrii. "Many tulips background. Bouquets of tulips in the market." Adobe Stocks, 2019. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Anneke. "Endless rows in a vineyard." Adobe Stocks, 2011. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Barmalini. "Keeping for years of dry red wine in new oak barrels in caves in Burgundy, made from pinot noir grape." Adobe Stocks, 2021. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Belcikova, Irina. "Beautiful old apple tree garden blossoming on sunny spring day." Adobe Stocks, 2019. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Bokuchava, David. "Chanterelles, wild bilberries (blueberries) and lingonberries in a bowl on the moss with fallen pine tree twigs and needles. Wild berries and mushroom foraging in the Nordic forest." Adobe Stocks, 2019. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Deshaies, Julie. "Picking edible fiddle head." Adobe Stocks, 2018. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Filimonov, Iakov (JackF). "Crate full of freshly picked red strawberries standing at farm field, farmers picking berries on background." Adobe Stocks, 2021. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Fuentes, David. "adult male worker collecting bunches of grapes in his basket for harvest in a vineyard." Adobe Stocks, 2020. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Lightfield Studio. "Cropped view of senior self-employed farmer holding potatoes." Adobe Stocks, 2019. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Lizaveta25. "Beautiful bouquets of multi-colored gladioli in a vase." Adobe Stocks, 2019. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Mbruxelle. "Maple taffy on snow at the sugar shack, in Montreal, Canada." Adobe Stocks, 2017. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Morin, Luce. "Collecting sap with modern plastic tubing. Maple sugaring. Sugaring. Sap lines. Maple tubing collection system. Tapping maple tree. Maple tree tapping. Producing maple syrup." Adobe Stocks, 2018. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Mountains Hunter. "Winepress with red must and helical screw. Traditional old technique of wine making. Filtering grape must." Adobe Stocks, 2021. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

New Africa. "Wooden crate with fresh ripe corn on field." Adobe Stocks, 2019. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Olegganko. "Autumn apple harvest festival with abundant fruit baskets under trees in a sunny orchard." Adobe Stocks, n.d. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Perlphoto. "Blue and pink delphinium flowers." Adobe Stocks, 2014. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Race, Dan. "Woman at gardening is harvesting rhubarb." Adobe Stocks, 2019. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Reitmeyer, Ricardo. "This Whitetail Buck was searching for doe along this very colorful tree line at sunrise on this late Autumn morning." Adobe Stocks, 2015. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Siroj. "Rustic Cabin in Forest Producing Artisanal Birch Syrup with Traditional Methods." Adobe Stocks, n.d. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Studio Barcelona. "Colorful varieties of pumpkins and squashes." Adobe Stocks, 2017. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Tatevosian, Yana. "Man farmer with homemade vegetables in his hands. Selective focus." Adobe Stocks, 2019. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Vijeikiene, Birute. "Pink Peony." Adobe Stocks, 2011. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Zrogan. "Vibrant blossoming chrysanthemums in the garden." Adobe Stocks, n.d. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 26 October 2024].

Figure 106. Proposed trail materials

Achepovsky, Alexey. "Deck texture." Adobe Stocks, 2017. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 10 October 2024].

Kornnphoto. "Orange rust stains on weathered steel plate or yellow iron table and old brown metal wall from moisture to tetanus for dirty dark board background or red retro backdrop and ancient texture on top view." Adobe Stocks, 2023. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 10 October 2024].

Salomatin, Andrew. "Grey ground stone rubble road background. Natural gray granite chippings, macadam, rubble or crushed stones texture, top view." Adobe Stocks, 2017. [Online]. Available at: <https://stock.adobe.com/ca/> [Accessed 10 October 2024].

Disclaimer: All photographs and illustrations, unless otherwise stated, are the original work or part of the author's private collection.

