LANDSCAPE PERFORMANCE SERIES
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Power To Be Basecamp
Methods

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The full case study can be found at: https://landscapeperformance.org/case-study-briefs/Power-To-Be

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Acknowledgements

We recognize and respect that Power To Be's site is on the unceded territory of the W̱SÁNEĆ First Nations and the lək̓ʷəŋən People, known today as the Esquimalt and Songhees Nations. In particular, this land holds deep significance for the W̱JOŁEŁP (Tsartlip), SṮÁUTW̱ (Tsawout), W̱SIKEM (Tseycum), BOḰEĆEN (Pauquachin), and MÁLEXEŁ (Malahat) First Nations. We reflect on this history and honor the ongoing connections of Indigenous communities to this land and reaffirm our commitment to social justice and reconciliation.

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Overview and Research Structure

The future of established design practices, such as architecture and landscape architecture, increasingly recognize the importance of balancing human-nature relationships and achieving net-positive impacts on both social and ecological fronts. To effectively evaluate a project's success and its positive outcomes, it is essential first to understand the concept of place and the interconnected social and ecological dynamics that define its spatial and temporal boundaries—whether it's a neighborhood, a watershed, or an ecosystem.

Assessing the performance of these complex systems remains a significant challenge for both academics and practitioners. Performance metrics often fall short in capturing the intricate social and ecological complexities that characterize a place. Additionally, the absence of baseline data during the early design stages makes it difficult to draw meaningful comparisons over time. Moreover, there is a noticeable gap between evaluated performance and people's lived experiences, underscoring the limitations of relying solely on either quantitative or qualitative approaches.

This research aims to improve practitioners' ability to accurately assess performance and to develop more adaptive design solutions. By exploring and advocating for methodologies that integrate both qualitative and quantitative approaches, the study seeks to address the limitations and disparities inherent in each approach, ultimately leading to a more comprehensive understanding and evaluation of design outcomes.

Goodhart’s Law states, “When a measure becomes a target, it ceases to be a good measure”, serving as an important reminder to recognize the potential limitations of performance indicators and to approach evaluation with an open mind and heart. The law suggests that any statistical regularity observed in a system is likely to lose its predictive power once it becomes the focus of control efforts. In the context of evaluating success in design interventions if practitioners focus too narrowly on certain performance metrics, they may overlook other important aspects of the system or even encourage behaviors that game the system to achieve desired outcomes on paper, rather than encouraging true improvement.

Given the insights from Goodhart’s Law, the methods and data presented in this study should not be seen as ultimately definitive or the sole determinants of success. Rather, they serve as tools to highlight popular trends, key focus areas, and provide guidance within the broader context of understanding complex systems. The aim is not to reduce performance to a set of rigid metrics but to use these methods to explore deeper layers of meaning and connection within the social and ecological dynamics being studied. By emphasizing the limitations of using any single metric or set of metrics as a definitive

measure of success, this study encourages a more holistic approach. The intent is to guide practitioners towards a more reflective and adaptive design process, one that remains open to evolving insights and the complexities of real-world environments. Rather than seeking to control or overly simplify, this approach values the richness and variability inherent in human-nature interactions, ensuring that the assessment of design outcomes remains flexible, responsive, and meaningful.

To ensure an accurate comparison aligned with the initial project goals, we focused on the baseline data gathered during the pre-design phase. This approach allows for a comparative analysis of performance before and after the design intervention, enhancing our ability to demonstrate net positive outcomes. We were fortunate to have a strong baseline of ecological and social data collected by the design teams through early engagement sessions, assessment documents, and ecological analysis. These datasets were revisited with the goal of replicating relevant approaches to maintain consistency in our evaluation. Interpreting, analyzing, and ground-truthing the comparative results were essential aspects of this study. Ground-truthing involved engaging in further conversations with our extended group, which included the design team, our research colleagues, and the project biologist. These discussions were crucial for validating our findings and ensuring that the comparative results are reflected and interpreted closer to reality. This collaborative approach allowed us to cross-check our interpretations with the insights and expertise of the broader team.

At the first phase, we began by conducting introduction sessions with members of the design team and Power To Be, gathering initial materials, and familiarizing ourselves with the site while laying the groundwork for our research approach. We then moved to secondary data collection in phase two, where we gathered existing reports, baseline data, and engaged in team collaboration to plan our methods, and learn relevant tools like the ESIITool and Ecosystem Intelligence platform, and qualitative methods to capture participants experiences. In the primary data collection phase, we planned and conducted interviews, a focus group, and an engagement activity, along with on-site data collection to create comparative datasets. Finally, we analyzed and coded the data, validated findings through ground truthing with our extended team, facilitated discussions, and compiled our final results for presentation.

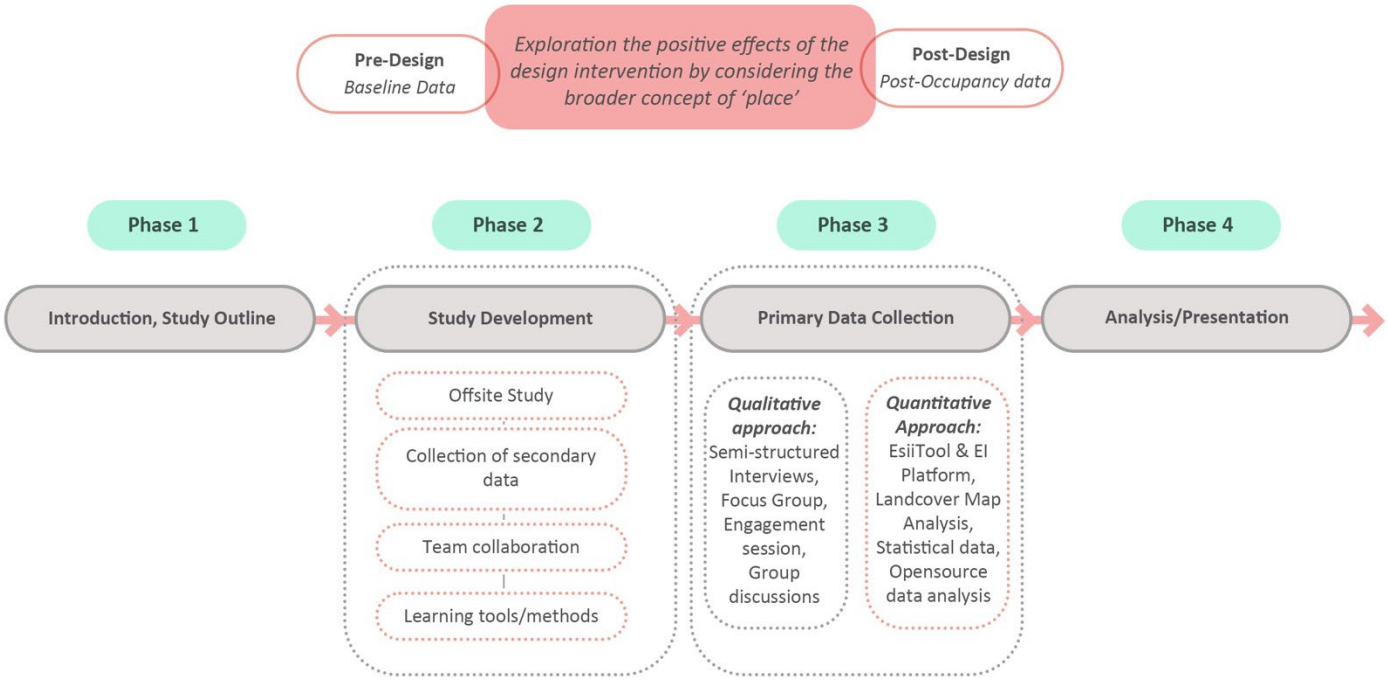


Figure 1: Our approach comprised of four main stages outlined above.

Environmental Benefits

Limits land disturbance, with new construction confined to 1.8 acres or 8% of the area previously disturbed by the former golf course. The remaining 92% of the disturbed area was left undeveloped to allow woodland, wetland riparian, and freshwater ecosystems to recover and rewild.

Background:

The site used to be a large (87-acre) privately owned parcel that included the former Prospect Lake Golf Course in Saanich, BC. The ecological health of the site's predeveloped areas had been compromised due to disruptions in soil, water, and vegetation systems. Nevertheless, parts of the site retained significant ecological value and had not been subjected to intensive land use. The property was located within the Coastal Douglas-fir Moist Maritime biogeoclimatic unit. The CDFmm represents the mildest climate in Canada (Green and Klinka, 1994). The forests on the sites are dominated by Douglas-fir (*Pseudotsuga menziesii var. menziesii*), as well as Amabilis fir (*Abies amabilis*) and Western redcedar

(*Thuja plicata*) and drier sites are characterized by the presence of Garry oak (*Quercus garryana*) and arbutus (*Arbutus menziesii*) (Green and Klinka, 1994). The land was a mix of developed areas and second growth forest of various ages, as selective logging had occurred throughout the area. The northern property boundary intersects Prospect Lake. Existing land improvements during the golf course era included a large building to accommodate the former golf course clubhouse, a tool shed, a small cabin, a floating dock on the lake, a parking lot, and gravel roads and pathways throughout the property. Many of these improvements were located on the north-western side of the property. The design team focused on protecting and restoring the ecologically valuable areas, while situating development and construction for Power To Be in locations that were already developed or exhibited higher levels of existing disturbance.

Method:

Data for this study is collected from pre-project landcover maps and biophysical assessment documents completed in January 2018 by EDI Environmental Dynamics and post-project site plan maps from the design teams. A USGS Earth Explorer photograph of the site is overlayed with the former golf course property boundary area with identified land cover types and the site plan of the project development after design in 2022.

Calculations:

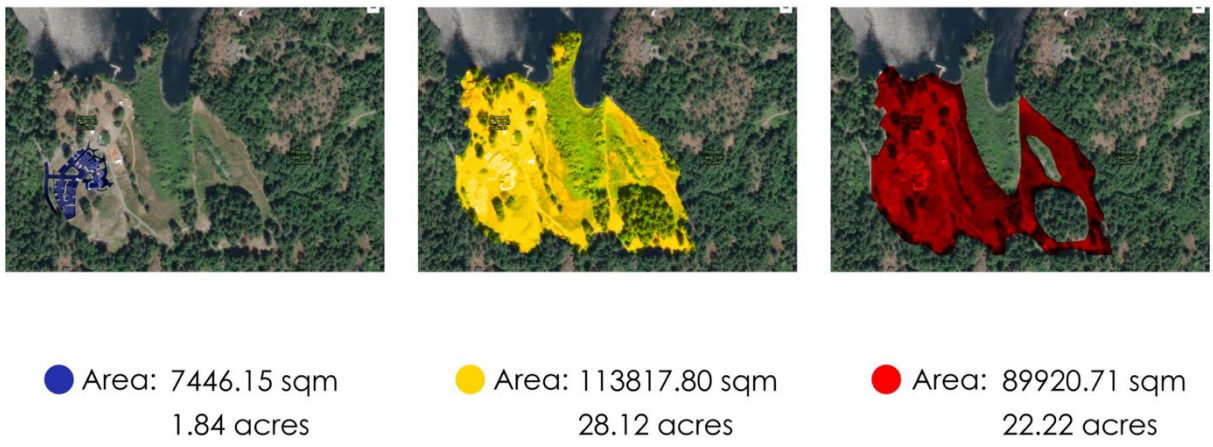
The three mentioned photographs and design drawings were scaled and measured in AutoCAD to align. After scaling they were overlayed. The polygon areas of the disturbed site were identified by biophysical assessment documents and included the former golf course area. Areas disturbed to construct the park were identified using the final site plan and aerial imagery. The total area of the project was calculated using the AutoCAD "MEASUREGEOM" command and converted from square meters to acres. The two polygonal maps were then overlaid to identify overlapping areas, which were considered construction disturbances confined to previously developed parts of the site. The percentage of overlap was determined by comparing the area measurements.

Land Type	**Area (Acres)**
Total Site	28
Previously Disturbed	22
Project Construction	1.8

Ecosystem types identified before construction:

Ecosystem Type	Area (acres)
Freshwater	5.93
Non-sensitive / Developed	27.43
Riparian / Wetland	4.45
Coniferous Woodland	63.75

Generalized ecosystem types were mapped according to orthophoto interpretation and field assessment. The study area was mapped into four ecosystem types. Of these, coniferous woodland (likely including some mixed and deciduous woodland) covered approximately 63.75 acres of the study area while developed areas – primarily the golf course and associated facilities – covered about 27.43 acres; the remainder consists of freshwater and riparian/wetlands. Forest cover was confirmed at the time to be a combination of young (~50 – 80 years old) and mature Forest (~80 – 250 years old) with some large veteran trees, including Douglas fir, grand fir and western redcedar.



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Green, R.N. and K. Klinka. 1994. A Field Guide to Site Identification and Interpretation for the Vancouver Forest Region. Province of British Columbia, Research Branch, Ministry of Forests, Victoria, BC.

CRD. 2017. Ecological Sensitive Areas. Retrieved online from https://www.crd.bc.ca/docs/default-source/es-watersheds-pdf/ecologically-sensitive-areas-victoria-natural-history-society.pdf?sfvrsn=0

Limitations:

- The method faces limitations related to the resolution and accuracy of aerial photographs and maps, which may affect analysis precision.
- Variations in weather and seasons during the aerial photography sessions can impact the visual assessment of vegetation and landcover.
- The area measurements in AutoCAD may not be entirely accurate and can be influenced by human error during the scaling process.
- Identifying previously disturbed areas is subject to human error.

Prevents approximately 787,000 gallons of wastewater from entering the city's sewer system annually using a septic tank, which saves an estimated $2,361 to $7,870 per year.

Reduces demand on potable water resources by an estimated 1.1 million gallons annually by using well water, which saves between $6,400 and $11,500 per year.

Background:

This project operates independently of the city's sewer and water systems, relying on a septic tank and a well for its water and wastewater needs. This setup is unusual for a commercial building of this size but offers several advantages. The septic system reduces the burden on municipal sewage infrastructure, helping to conserve city resources and lower the environmental impact by managing wastewater on-site. This also translates into cost savings by eliminating municipal sewage treatment and disposal fees. Similarly, the well provides a self-sufficient and reliable water supply, reducing dependency on the city's water system and avoiding ongoing usage fees. Over time, this independent approach can lead to substantial cost savings while providing a resilient water source, especially valuable in areas facing water scarcity or rising utility costs.

However, operating off-grid in this way necessitates rigorous operational standards and regular monitoring. Maintaining high water quality and system efficiency is critical to prevent potential issues,

such as contamination or system overuse. Regular maintenance and careful management of both the septic tank and well are essential to ensure sustainable, long-term functionality of the site's independent infrastructure.

Method:

Step 1: Estimating the amount of sewage water managed by the septic tank and costs associated

To estimate the amount of sewage water managed by the septic tank, firstly, the daily water usage for the site was determined, as this directly correlates to the sewage generated. The number of people using the site is then multiplied by the average amount of water used per day per person. The number of people visiting the site can be determined based on site visitation reports and the average amount of water used per day can be estimated.

To calculate the annual sewage volume, the daily water usage is multiplied by the number of days in a year. The total annual sewage volume managed by the septic tank represents the volume of sewage water that is prevented from entering the city sewer system. To determine the financial savings, the local rates for sewage treatment must be found, typically charged per 1,000 gallons.

Step 2: Estimating the cost savings from using a well

To calculate the annual cost savings and amount of water savings from using a well instead of municipal water, first the total annual water usage in gallons was determined. Next, the cost per gallon of municipal water was identified. By multiplying the total annual water usage by the municipal water cost per gallon, the total savings was calculated.

Calculations:

The Capital Regional District (CRD) (the CRD is the regional government for 13 municipalities and three electoral areas on southern Vancouver Island and the Gulf Islands) states that in the capital region, residents use an average of 220 liters of water per person, per day. Based on estimates from across the web, daily non-residential use in BC is approximately 50% of residential use and about 450 liters.

Step 1 Calculation:

Amount of Sewage Water Managed by the Septic Tank

1. Daily Water Usage:

    The average daily water usage per person per day in businesses, institutions and public facilities in BC = 450 litres.

    Power To Be had an average of 2163 participants visit annually.

    There are approximately **40 staff members** associated with Power To Be. However,

only **50% (20 staff members)** are assumed to be on-site each day.

To estimate their total presence throughout the year, we multiply the **20 daily staff members** by **365 days** (assuming they work each day on average).

Add the annual visitors and the adjusted total staff presence for the year:
Total Annual Presence=2,162 (visitors)+(20×365) (staff)= **9,462**

2. Annual Sewage Volume:

Daily sewage volume=Average daily water usage per person - 30% =**315** liters.

The difference between total water usage and sewage output per person generally ranges from about **10% to 30% lower** for sewage.

Considering Power To Be might have significant outdoor water use, such as irrigation or landscaping, the difference is considered closer to 30%.

Annual sewage volume=315x9462= **2,980,530 liters.**

Approximately **2,980,530 liters** or **787,373 gallons** are saved annually by using an on-site well and reducing dependency on municipal water and sewage systems.

Reduction in Sewage Water Entering the City System

1. Annual Reduction:
    - The total annual sewage volume managed by the septic tank is the volume prevented from entering the city sewer system.

Annual reduction=Annual sewage volume.

To calculate the cost savings from diverting approximately 787,000 gallons of water from the sewer system, we can use estimated wastewater treatment costs in British Columbia. Although rates vary depending on treatment complexity, a common cost range is between $0.003 to $0.01 per gallon.

Estimated Cost Savings

- **Low Estimate** ($0.003 per gallon):
  787,000×0.003=$**2361**
- **High Estimate** ($0.01 per gallon):
  787,000×0.01=$**7,870**

So, the project could save between **$2,361 and $7,870** annually.

Step 2 Calculation:

- Total annual water usage: **9,462x450=4,257,900 liters or 1,124,818 gallons**.
- The 2024 CRD Regional Water Supply wholesale water rate is $0.8094 per cubic meter. Retail water rates around the region typically range from $1.50 to $2.70 per cubic metre (which includes the wholesale rate portion).

With the updated total annual water usage of **4,257.9 cubic meters**:

- **Low Retail Rate** ($1.50 per cubic meter): The annual savings would be approximately **$6,386.85**.
- **High Retail Rate** ($2.70 per cubic meter): The annual savings would be approximately **$11,496.33**.

These values represent the potential savings by using on-site water and reducing reliance on municipal water supplies at retail rates.

Sources:

https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3810027101&cubeTimeFrame.startYear=2021&cubeTimeFrame.endYear=2021&referencePeriods=20210101%2C20210101

Table 38-10-0271-01 Potable water use by sector and average daily use
https://doi.org/10.25318/3810027101-eng

https://www.crd.bc.ca

https://metrovancouver.org/welovewater/why-conserve-water#:~:text=Metro%20Vancouverites%20use%20about%20270,litres%20per%20person%20per%20day.

Limitations:

- Water usage can vary based on the behavior and activities of the users, which is not accounted for in this method.
- Compliance with local regulations and standards for septic systems is not addressed, which could impact costs and system viability.
- The method does not account for the upfront installation costs of the well, which can be significant.
- The method does not include the costs associated with pumping and maintaining the well, which can affect the overall cost savings.
- The method does not consider seasonal variations in water usage, which could impact the accuracy of the annual estimate.

Supports improved water quality in Prospect Lake for 7 out of 8 parameters including recreational and environmental E. coli, dissolved oxygen, pH, chlorine, aesthetics, and sewage debris, as evaluated by citizen science water monitoring.

Background:

Power To Be is partnered with Swim Drink Fish, a Canadian charity dedicated to monitoring, restoring, and protecting local waters. Power To Be's Prospect Lake site is a water monitoring hub where Swim Drink Fish conducts water quality monitoring programs. Operating out of Prospect Lake, The Victoria Hub is a partnership between Swim Drink Fish and Power To Be. It engages the community in water quality monitoring and data-sharing, as well as stewardship of local waters. The Victoria Monitoring Hub conducts weekly water quality testing with samples collected from locations in Victoria and transported to the Power To Be Basecamp for analysis. Additionally, by participating in programs created and led by Power To Be, Swim Drink Fish helps educate the community in the form of water literacy and water sampling workshops. People have the opportunity to volunteer and contribute to the community science movement while taking action to protect and restore their local waterways.

Method:

Swim Drink Fish follows specific guidelines, field protocols, and lab procedures to maintain high standards in water quality monitoring. They provide report cards for each of their monitoring hubs which is openly available on their website.

Report Card Methodology

- **Background Information**: Based on the Ecocheck (2011) methodology, each site report varies by goals, pollution concerns, and water body type, with consistency maintained where possible.
- **Sampling Period**: Data is collected from June 1 to September 31, reflecting peak water usage.
- **Number of Sampling Sessions**: Session frequency varies based on factors like site accessibility, safety, weather, and volunteer availability.
- **Water Monitoring Indicators**: Indicators include E. coli, dissolved oxygen, pH, chlorine, conductivity (freshwater only), and turbidity.
- **E. coli Geomeans**: Geometric means are used for averaging, reducing the impact of outliers, as per Canadian standards.

Grading Scheme

- **Single Threshold (Physical and Chemical Parameters)**: Each parameter has a passing/failing

threshold set by Swim Drink Fish. For instance, dissolved oxygen levels below 6 mg/L fail as aquatic life struggles below this level. Other indicators include pH, chlorine, conductivity, and clarity, with specific thresholds for freshwater and saltwater.

- **Single Threshold (Recreational Water E. coli):** Health authorities set regional thresholds for E. coli, with pass/fail criteria varying by hub. Thresholds ensure water is safe for recreation, based on regional guidelines.

Indicator	Passing Threshold	Failing Threshold
Dissolved Oxygen	< 6 mg/L	≥ 6 mg/L
pH	6.5 - 8.5	< 6.5 or > 8.5
Chlorine	≤ 0.5 ppm	> 0.5 ppm
Conductivity	≤ 500 µS	> 500 µS
Clarity (freshwater)	≤ 1.8 m	> 1.8 m
Clarity (saltwater)	≤ 1.6 m	> 1.6 m

Values for Victoria:

- Geomean Pass/Fail Threshold: 200 MPN/100 mL
- Single Sample Pass/Fail Threshold: 400 MPN/100 mL

Swim Drink Fish uses a gradient scoring system for E. coli levels, reflecting health impacts that vary with concentration:

Threshold	Score
< 43 MPN/100 mL	5
≥ 43 < 235 MPN/100 mL	4
≥ 235 < 400 MPN/100 mL	3
≥ 400 < 1200 MPN/100 mL	2
≥ 1200 < 2419.6 MPN/100 mL	1

Letter Grade	Percentage Range
A+	90-100%
A	80-89%
B	70-79%
C	60-69%
D	50-59%
F	<50%

≥ 2419.6 MPN/100 mL	0

Aesthetics Score

The aesthetics scoring system, developed for the Toronto Remedial Action Plan, assesses four categories to determine overall site condition. Lower scores indicate poorer conditions:

- **Clarity**: Clear (10), Cloudy (7), Opaque (0)
- **Odour**: None (10), Musty (6), Petroleum (5), Sewage (2), Petroleum spill (0), Anaerobic (0)
- **Colour**: Clear (10), Green (7), Yellow/Amber (6), Brown (5), Grey (2), Black (0)
- **Debris**: None (10), Natural (8), Oil film (3), Trash (2), Foam (2), Sewage (0)

Calculation Method	Formula
Single Threshold	(# of passing scores/total scores)×100(# of passing scores/total scores)×100
Multiple Thresholds	(average score/5)×100(average score/5)×100
Aesthetics	(average score/10)×100(average score/10)×100
Sewage	(\text{# passing scores} / \text{total sessions}) \times 100

Calculations:

Prospect Lake site was sampled 14 times in 2023 based on water monitoring report card by Swim, Drink, Fish. The goal was to have a better understanding of water quality for their program attendees and nearby residents. It gained an A+ grade in 7 out of 8 parameters of water quality indicators. The table below shows water quality grades for all 8 parameters:

Water quality grades		
Parameters	**Description**	**Grade**
Environmental E. coli	The impact of E. coli on ecosystem, human, and wildlife health intensifies with its concentration. Therefore, environmental E. coli levels are evaluated using multiple thresholds rather than a single one, as is done in recreational E. coli assessments.	A+
Dissolved oxygen	Dissolved oxygen is essential for healthy ecosystems, as most aquatic animals need oxygen to survive. Measurements of dissolved oxygen were marked as a “pass” if levels exceeded 6 mg/L.	A+
pH	pH stands for the “potential for hydrogen” in water. Levels vary across water bodies but typically range from 6.5 to 8.5 in freshwater. Maintaining appropriate pH levels supports nutrient availability for aquatic life and allows metals to dissolve safely. If pH drops too low, it can harm fish eggs and macroinvertebrates, disrupting the ecosystem.	A+
Chlorine	Chlorine does not naturally occur in water; its presence typically results from human sources like water treatment plants. Prolonged elevated chlorine levels can harm wildlife. Chlorine levels are marked as a “fail” if detected above 0.5 ppm.	A+
Clarity	Clarity measures the amount of light penetrating the water, essential for algae, fish, and other wildlife. Poor clarity, often caused by sediments and excess algae from nutrient loading, affects ecosystem health. In freshwater, a passing clarity level is below 1.8 meters, while in saltwater, it is below 1.3 meters.	F
Sewage debris	If sewage debris is present, it may indicate a recent overflow from a nearby combined sewer. A “pass” is given for sewage debris if none is observed at the site on the monitoring day.	A+
Aesthetics	The aesthetics score evaluates factors that affect recreational enjoyment of a site, including water color, odor, surface appearance, and turbidity. A low score indicates the site may be less appealing for activities like swimming or general enjoyment of the water.	A+
Recreational water	Regional health authorities set recreational water	A+

E. coli	quality guidelines, establishing thresholds below which the risk of illness from water activities is low. In water monitoring, E. coli levels are assessed against these thresholds, with results marked as "pass" if they meet the guidelines and "fail" if they exceed them.	

Three types of trash were found in Prospect Lake: **styrofoam**, **plastic bags** and **plastic bottles.**

Based on the report by Swim Drink Fish, low water clarity scores, and input from local groups indicate that nutrient loading is the primary water quality issue in Prospect Lake. Excess nutrients lead to algal blooms, which eventually settle at the lake's bottom and decompose. During this decomposition process, bacteria consume the available oxygen, depleting it at the lakebed and threatening the survival of various wildlife species.

Future recommendation of the report:

- Extend E. coli monitoring for an additional season to verify water quality findings.
- Explore issues related to phosphorus and nitrogen pollution in the lake and their connections to E. coli levels.

Examining the tools and methods used in Swim Drink Fish's community-based water monitoring program can inspire designers to collaborate with similar local organizations and initiatives in their own regions. Partnering with established programs for water quality monitoring offers multiple benefits: it provides designers with valuable environmental insights relevant to their projects, strengthens community ties, and leverages existing expertise and resources.

Limitations:

- The data is limited to 2023, which may not reflect longer-term trends or seasonal variations.
- Lack of historical data makes it challenging to compare current conditions against past water quality.
- Community monitoring relies on volunteers, which may lead to inconsistencies in data collection due to varying levels of training and experience.
- The monitoring program concentrates solely on Prospect Lake, other critical water bodies on site, such as wetlands and creeks are not considered in this benefit. This limited scope may miss important ecological interactions and water quality variations across the entire project area.

Sources:

https://www.swimdrinkfish.ca/victoria-hub-sites

https://static1.squarespace.com/static/5e67c1eef2132f62e71f739d/t/656a573f0060905ee50bcfb9/170

1467986030/2023+EHSS_+Prospect+Lake+-+Power+To+Be.pdf

https://static1.squarespace.com/static/5e67c1eef2132f62e71f739d/t/660333f1e29aaf2bf4092afa/1711485937758/Explainer+Page+for+Report+Cards+%282%29.pdf

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Ministry of Environment (MoE). 1996. State of water quality at Prospect Lake 1980-1995.

Increases ecological function and total stacked ecosystem services related to core metrics like air quality, biodiversity, climate, soil, water, and well-being as estimated using an ecological inventory tool, which outperforms the baseline scenario in which the previous golf course remained.

Background:

This benefit is about the exploration of the disturbance to a system, its functioning, and the degree to which it might be restored through emulation of performance of a reference ecosystem. Christine Lintott, the architect of the project, integrated the principles of Biomimicry Thinking into the scoping phase of the development project for this site in 2016. Biomimicry Thinking involves drawing inspiration from natural systems and processes to inform sustainable design. In this case, Lintott used an ecological inventory tool, ESii (Ecosystem Services Identification and Inventory), to assess and compare the landscape attributes of the project site with those of an adjacent, intact reference ecosystem. The integration of Biomimicry Thinking and the use of the ESii tool allowed for a deeper understanding of the site's ecological context. This informed design decisions aimed at restoring and enhancing ecosystem functions and ecosystem services related to them.

In 2011, The Nature Conservancy (TNC) and The Dow Chemical Company initiated a collaboration aimed at incorporating the value of nature into business decision-making. To achieve this, the EcoMetrix Solutions Group partnered with TNC and Dow in 2013 to develop the Ecosystem Services Identification & Inventory (ESii) Tool. The ESii tool was designed to help businesses rapidly assess and quantify the ecosystem services provided by a site, making it easier to integrate this data into existing engineering and financial models.

By incorporating this methodology, Christine Lintott's approach aimed to understand and enhance the ecological health of the project site and to also serve as a valuable case study in the application of Biomimicry Thinking and the Esii tool in a development project. The use of biomimicry principles

allowed for the design to be informed by natural processes, while the Esii tool facilitated the integration of ecological data into decision-making. The ecological data collected during this phase provided a baseline, which serves as an essential reference point for future comparisons. These data allow for ongoing monitoring and evaluation of ecological changes over time, making it possible to assess the effectiveness of the interventions.

The core of this project was a hypothesis that the functional needs of the design challenge should match the ecosystem functions of the reference ecosystem. The ESii tool facilitates the mapping of a specific site with respect to the landscape attributes. These attributes compose the “structure” of the system. Analysis of the inputs by the tool provides outputs – the reporting of performance of ecological function, as well as ecosystem services. The intent was to utilize the ESii tool to value performance of both the project site (considered disturbed), and an adjacent, intact, reference ecosystem. The change was anticipated to establish a performance benchmark for design solutions. Acknowledging that there are functions and services that the tool is benchmarking, an important consideration was to later determine the relevance of these specific properties.

The ESii tool project workspace is accessed from a standard computer. The project site is virtually located and the data collection areas defined. Map units may be entered either through the project workspace or directly on the iPad during data collection. In addition to the basic setup, the tool requires the input of site-specific data such as mean annual precipitation, solar radiation, relative humidity, latitude etc. The ESii tool provides reference data sets or links to data sources. However, these sources are typically originating in the United States. For this project site, data was interpolated from the reference sets.

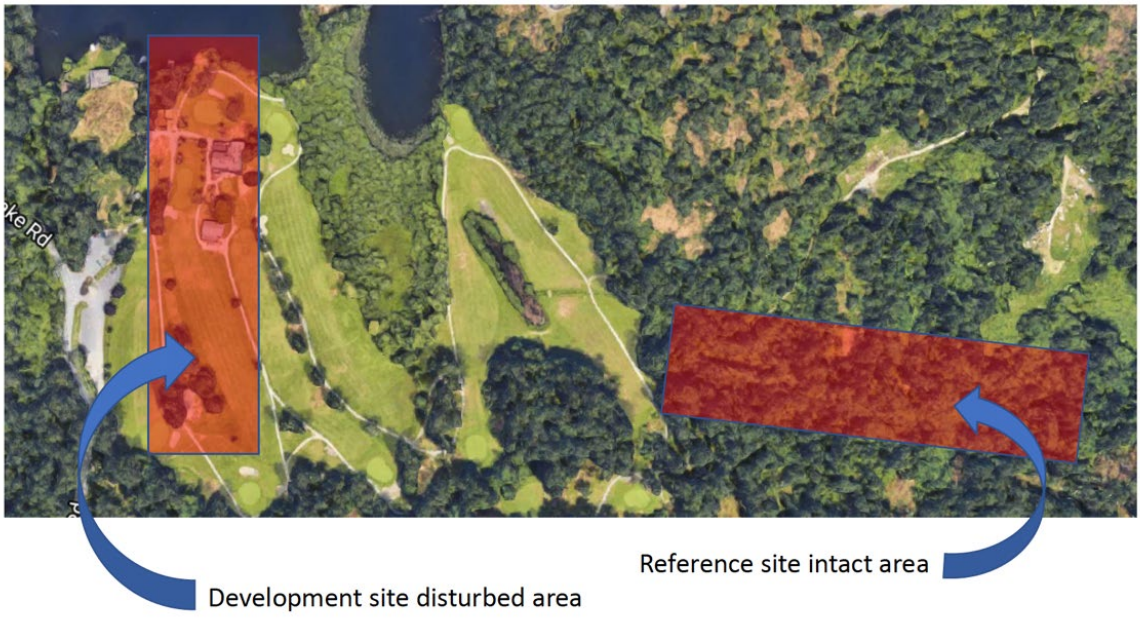

Figure 1: Two transects on the project site located on the south end of Prospect Lake on Vancouver Island, were defined and mapped for landscape attributes utilizing the ESiitool.

Method:

Ecosystem Intelligence (EI) Platform Overview

Building on the original ESii tool used by Christine Lintott, the Ecosystem Intelligence (EI) platform was developed by the EcoMetrix Solutions Group. EI represents an evolution of the Esii tool, incorporating updated models. EI is a tool designed to facilitate nature-based decision-making by quantifying ecological benefits and impacts. It allows users to evaluate the ecological consequences of different land use and design decisions through measurable data. Whether assessing the benefits provided by ecosystems such as wetlands or optimizing restoration and urban planning for maximum ecological impact, the platform provides clear, quantifiable outputs that guide decision-making processes. By translating complex ecological relationships into tangible metrics, the EI platform enables decision-makers to understand the impacts, benefits, and trade-offs associated with various design scenarios. This is achieved through a common unit of measurement that integrates throughout the decision-making cycle, allowing for clear comparison across different scenarios.

The Ecosystem Intelligence (EI) platform uses a systems-based approach to evaluate the co-benefits that ecosystems provide across various environmental and social factors. By translating complex ecological relationships into measurable outcomes, the platform helps assess how a site contributes to both nature and society. The categories analyzed within the platform provide a comprehensive view of ecosystem performance and benefits. By analyzing these categories, the EI platform offers insights into the overall ecological functionality of a site and its potential contributions to sustainability and human health.

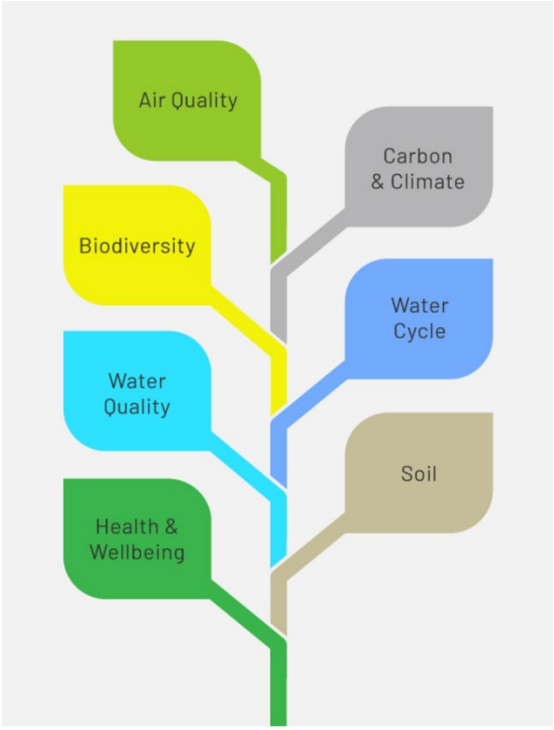

Figure 2: These categories are: Air Quality, Carbon & Climate, Biodiversity, Water Cycle, Water Quality, Soil. Health & Wellbeing.

The EI platform consists of two main modules:

1. Screening Module: This module is used to identify performance gaps in projects or ecosystems, providing insights that inform budgeting and design decisions.

2. Design Module: This module allows users to create and compare multiple design scenarios to evaluate their expected impacts on ecological functions and ecosystem services. The Design Module of the EI platform enables users to model and compare the ecological outcomes of different land use or restoration plans. It incorporates site-specific data gathered from various sources, including remote sensing, desktop research, and field data collected through the EI Field App. These inputs are then translated into visualizations that clearly demonstrate the combined impacts and benefits of each design alternative.

With the assistance of the EI support team, the relevant datasets—comprising the analysis area, survey units within the area, and the landscape attributes—were transferred from the Esii tool to the EI Design Module for comparison and analysis. To maintain consistency, the same analysis area was used both before and after the design intervention, ensuring that all comparisons are based on uniform conditions. The survey units were defined as areas of relative homogeneity, meaning that each unit shares similar landscape characteristics. A new scenario was created for the design intervention using the same analysis area, but with updated survey units reflecting the site's changes post-construction.

For each survey unit, landscape attributes were assessed using a standardized survey form, which included questions in four key categories:

1. Habitat Type

2. Vegetation Attributes

3. Surface Conditions

4. Visual and Noise Characteristics

These attributes were recorded through on-site observation, ensuring accurate, real-time data collection for each survey unit. This method allowed for a direct comparison of pre- and post-construction ecological functionality and ecosystem services. The results provide insight into the overall trends and changes in ecological performance within the analysis area, highlighting the impact of the design intervention.

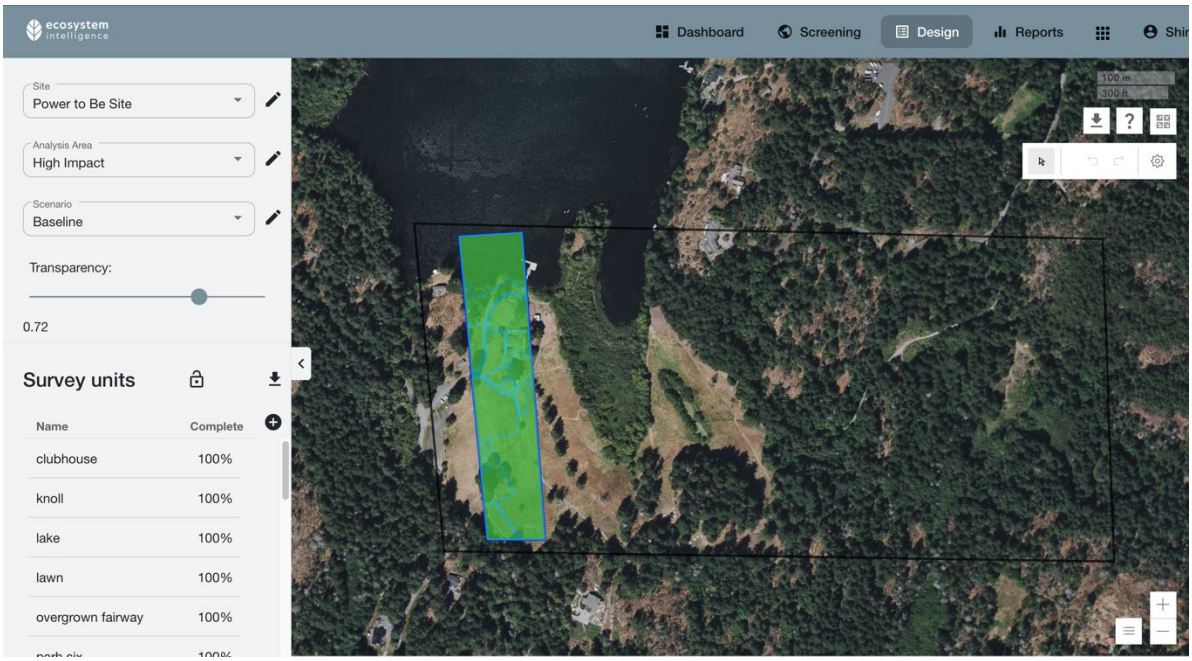

Figure 3: Screenshot of the analysis area within the site boundaries of the baseline scenario, design module of the EI platform.

In the previous analysis, the comparison focused on the difference (delta) between the disturbed site (the current analysis area) and a reference ecosystem. However, for this phase of the analysis, we adopted a different approach. Specifically, we compared the disturbed area before the design intervention—when the site functioned as a golf course—to the conditions after construction.
A reference ecosystem was not included in this phase, as the goal was to simplify the analysis and focus on the direct before-and-after comparison. This approach allows for a more straightforward evaluation of changes in ecological functionality and landscape attributes relevant to this specific case study, providing insights that are more immediately applicable to the project's outcomes.

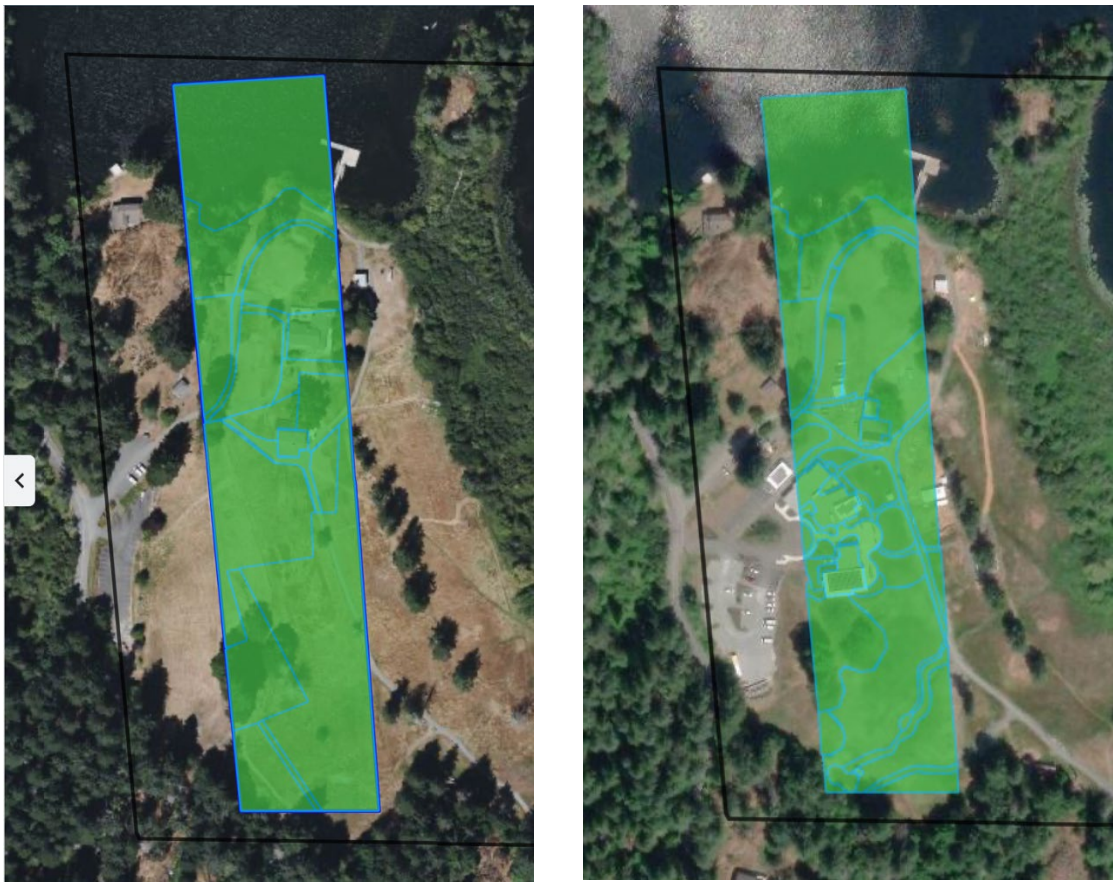

Figure 4: Survey units defined within the analysis area before design intervention (left) and after design intervention (right).

Figure 5: Team members Shima Tajarloo and Hayley Johnson filling out survey forms through field observations on site.

After completing each survey unit form, the performance reports were generated using the reports tab within the EI platform. This tab provides a comprehensive summary of comparisons between the two scenarios (pre- and post-construction), including results shown as percent performance, service acres, engineering units, and heat maps. These outputs are designed to allow users to evaluate the ecological functionality and services provided by the site in a clear and accessible format.

For the purposes of the present study, the focus was placed on the summary report, particularly the chart provided for *total stacked service acres*. Our team prioritized these result reports because they also offer a qualitative overview of the changes occurring within the analysis area, providing insights into how the site's ecological performance has shifted post-construction. This focus aligns with our objective of identifying broader trends rather than delving into the detailed metrics within each individual function or service category. The decision to emphasize qualitative trends, rather than specific engineering units or performance metrics for each function, was informed by the goals of the study. Since the EI platform is designed to facilitate scenario building and support decision-making processes that are accessible and easy to interpret, this approach was deemed most suitable for assessing the post-construction condition relative to the baseline data. By focusing on total service acres and "heat" maps, the analysis remains both informative and manageable, providing a clear understanding of how the site is evolving without becoming overly complex or technical.

Function/Service Acres as a Unit of Measurement

In the EI platform function/service acres are used to quantify both the quality and quantity of ecological functions and services provided by a site. This measure expresses the percent of maximum potential performance for a given function or service, weighted by the area in which it occurs. Essentially, it reflects the total benefit that the land provides to society.

Importantly, the total number of function/service acres can exceed the actual physical size of the site. This is because a single acre of land can perform multiple ecological functions simultaneously, such as providing habitat, filtering water, and regulating temperature. These overlapping benefits are referred to as "stacked" services.

Typical Uses

This unit of measurement is typically applied in several ways:

- Site Comparison: It helps in comparing one site to another in terms of the ecological impact and the potential benefits to the surrounding community.
- Mitigation and Offsetting: Function/service acres can be used to calculate the ecological impact of a project, either on-site or off-site, and determine what is required to mitigate or offset those impacts. This unit of measure allows for discussions around environmental "debits" and "credits."

- Project Planning: It enables planners to recognize that not all land areas contribute equally to ecological performance. This understanding supports more informed discussions about how to minimize negative impacts and achieve positive ecological outcomes.

The EI platform outputs represent a web of functions and services. The service component is anthropogenic, enabling tool engagement, making it easy to understand. The landscape structure, described by the collection of attributes, promote function, which are, in some instances and at the next level assembled and attributed to ecosystem service. The EI platform was employed to gather information about the underlying climate conditions as well as the landscape attributes of the physical site. Data were collected during the case study investigation post-construction, with outputs highlighting the relative ecological performance for the analysis area. It is anticipated that the difference between the performance of the baseline scenario and design intervention will be used as a reference datum highlighting general trends and can be used for future monitoring and performance objectives.

Calculations:

A summary of the EI platform outputs follows. This section presents an interpretation of the data collection relative to the broader project context. The two scenarios in graph form are represented below with total stacked benefits for core metrics indicated in the bottom of the graph. The delta in performance between the baseline scenario and the design intervention represents how the site is changing in response to the interventions applied on the landscape.

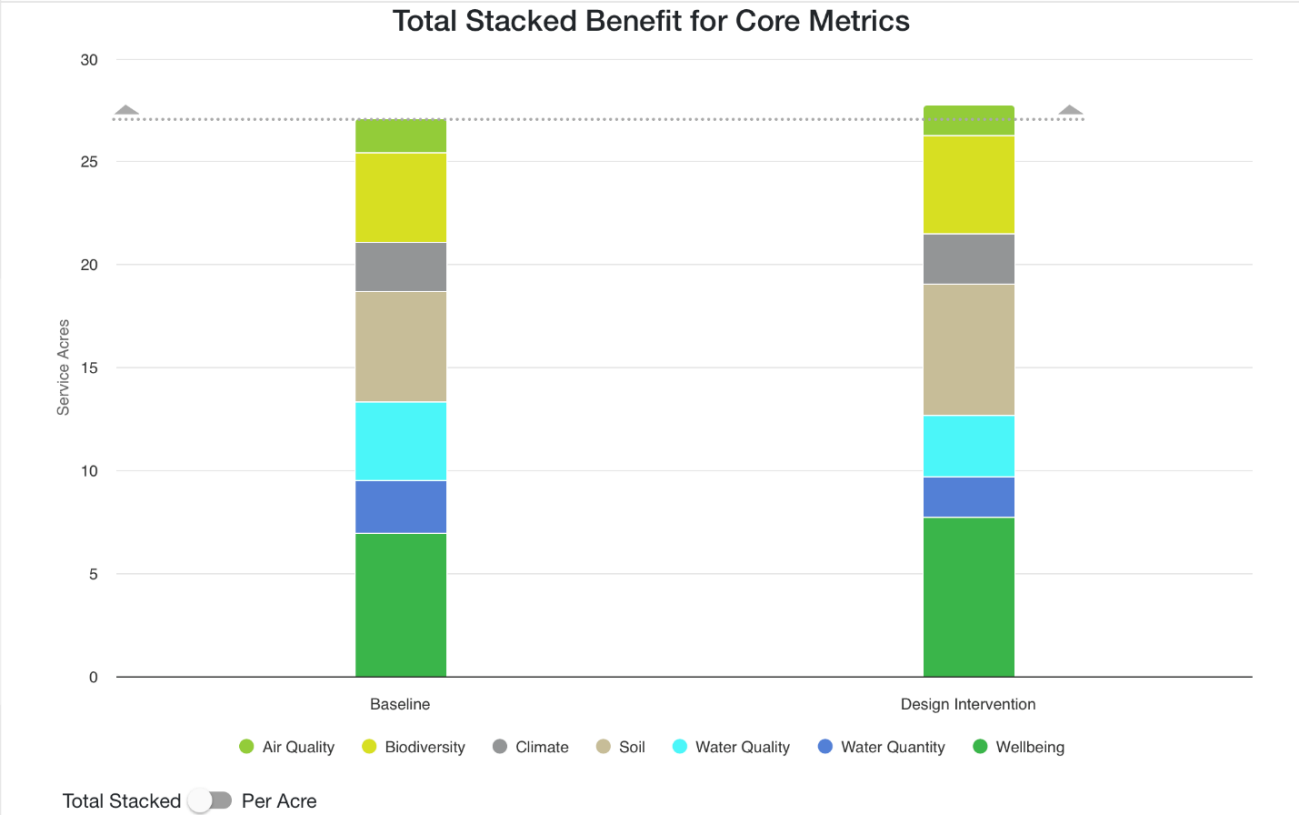

Figure 6: Relative performance of the two scenarios in the EI platform for total stacked benefits for core metrics.

CategoryService or Function	Baseline	Design Intervention
	Ready	Completed
Air Quality	1.69	1.48
Air Quality Sv.	1.69	1.48
Biodiversity	4.34	4.78
Biodiversity Support Sv.	1.79	2.01
Pollinator Support Sv.	1.21	1.15
Food Web Sv.	1.34	1.62
Climate	2.4	2.46
Carbon Sequestration Sv.	2.4	2.46
Soil	5.37	6.37
Soil Quality Sv.	1.94	2.73
Erosion Regulation Sv.	3.43	3.64
Water Quality	3.8	2.98
Water Quality Sv.	2.28	2.13
Total (Water) Nitrogen Removal Sv.	1.52	0.85
Water Quantity	2.58	1.94
Water Quantity Control Sv.	2.58	1.94
Wellbeing	6.94	7.74
Air Temperature Regulation Sv.	1.51	1.66
Aesthetics - Visual Sv.	2.64	2.92
Aesthetics - Noise Sv.	2.79	3.16

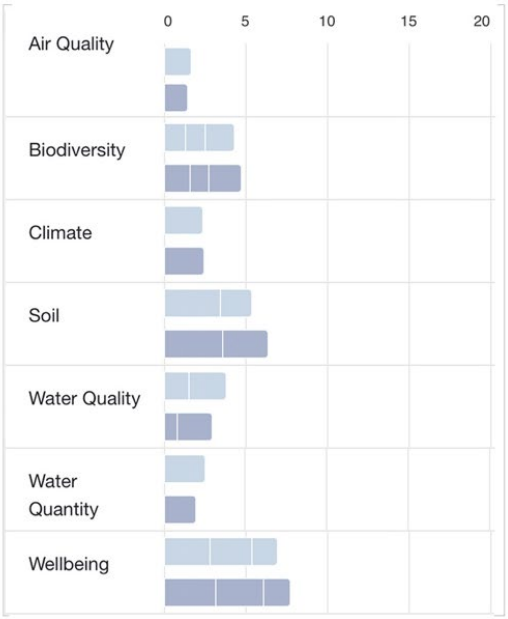

Figure 7: Relative performance of scenarios within each function/service category.

The results compare baseline conditions (before the design intervention) to design intervention (after the site intervention). Each core category—Air Quality, Biodiversity, Climate, Soil, Water Quality, Water Quantity, and Wellbeing—is broken down into specific subcategories of ecosystem services, with each subcategory reflecting the service acres for the baseline and post-intervention scenarios. The analysis of the service acres across core ecological functions and services shows that the design intervention improved several key areas, such as biodiversity, soil quality, and wellbeing, while other areas, such as water quality and water quantity, experienced slight declines. These findings highlight the trade-offs that can occur in complex ecosystem management and emphasize the need for continuous monitoring and adaptive management to optimize ecological performance post-intervention.

Category	Sub-category	Observation
Air quality	-	The results from the EI platform show a slight decline in air quality services after the design intervention. This reduction could be due to changes in aerial vegetation cover and/or vegetation height due to construction-related activities.
Biodiversity	1) Biodiversity Support: Increase 2) Pollinator Support: Slight decline 3) Food Web Support: Increase	Overall, biodiversity services improved post-intervention, particularly in areas such as food web support. This suggests that the intervention may have introduced more diverse habitats or improved the functionality of existing ecosystems. The small reduction in pollinator support could reflect changes in specific plant species that attract pollinators.
Climate	Carbon sequestration	A slight increase in carbon sequestration services post-intervention. This suggests that the vegetation or restoration efforts post-construction are contributing to carbon storage, albeit at a relatively stable rate.
Soil	1) Soil Quality: Significant increase 2) Erosion Regulation: Increase	Soil services show a noticeable improvement after the intervention, particularly in soil quality. This could be a result of better land management practices, increased vegetation cover, or soil restoration efforts that reduce erosion.
Water quality	1) Water Quality: Slight decline 2) Total Nitrogen Removal: Decline	The ability of landscape and design features to remove particulates, including sediments and other suspended pollutants, from flowing water or runoff. Water quality services slightly declined, particularly in nitrogen removal. This might indicate that while the design intervention improved some aspects of the site, it could have unintentionally affected water filtration or pollution control capacities, such as through nutrient runoff or construction-related disturbances.
Water quantity	-	The ability of the landscape to manage and convey a selected storm event (e.g., a 25-year storm). This metric incorporates processes such as interception, evaporation, infiltration and surface storage to predict a landscape's potential for water retention. There is a slight decrease

		in water quantity control services post-intervention, which may indicate that the site's ability to manage stormwater or flooding could have been impacted during or after construction.
Wellbeing	1) Air Temperature Regulation: Slight increase 2) Aesthetics - Visual: Increase 3) Aesthetics - Noise: Increase	The improvements in the wellbeing services (noise, visual, and air regulation) after the design intervention suggest that the changes made to the site have positively impacted the sensory environment. By reducing noise and visual disturbances and improving thermal comfort, the intervention enhances the site's suitability for human use, recreation, and interaction with nature.

Our research team's experience with the EI platform demonstrates how available resources in ecological performance metrics can be effectively leveraged by design teams to adopt systems-based, ecological thinking. Rather than serving as a rigid template, these tools provide a guide, offering insight into the potential ecological impacts of design decisions. The use of such tools also highlights the importance of establishing a strong baseline dataset, which not only allows for consistent comparisons but also supports long-term monitoring of design interventions. By staying consistent with the applied methodology, trends and changes in ecological performance can be tracked over time, providing valuable data for future analysis. Additionally, although designed for non-ecologists; these tools can promote collaboration amongst design teams, stakeholders, and ecologists, providing an opportunity for a deeper conversation and understanding of the complex relationships within ecosystems. This collaboration can help bridge the gap between ecology and design knowledge, ultimately leading to more informed and ecologically positive design outcomes. By focusing on ecological thinking, these tools help design teams move beyond static assessments, setting the stage for long-term stewardship by building occupants.

Sources:

https://www.esiitool.com

https://app.ecosystemintelligence.com/

Ecosystem Intelligence Design Module Platform

Virtual Design Lab Practicum; Christine Lintott, 2016.

Primary data gathered through on-site observations and surveys.

Limitations:

- The EI platform is not designed to measure built systems directly, which can limit its effectiveness in fully capturing the post-construction ecological performance. This necessitates supplementary methods or tools to validate these findings.
- Differences in environmental conditions between pre- and post-construction assessments (e.g., weather variations, seasonal impacts) could skew results.
- The tool's ability to delineate intricate landscape patterns and attributes may not sufficiently address all nuanced ecological interactions, especially in highly modified environments.
- Some data may be lost in between converting the baseline dataset from ESII Tool to EI platform.
- While the platform provides a framework for assessing ecosystem services, it may not adequately account for site-specific nuances that require more detailed ecological understanding.
- The platform's effectiveness relies heavily on the quality and completeness of survey form. If initial data collection or site observation is incomplete or inaccurate, future comparisons and monitoring may be flawed.
- The platform may not be fully optimized for long-term, adaptive monitoring, which requires more dynamic interpretations.
- The use of such platforms requires training and familiarity with the tool.
- Ecosystem services are inherently complex, and teams must be cautious of overly simplifying these relationships, potentially missing important interactions and feedback loops.
- The analysis area does not cover the complete area of the project and is a transect, thus the data presented and interpreted might not represent the full spectrum of impact.

Increased the number of observed bird species by 21%, from 71 to 86 species. 34 of 86 are species that were not observed before construction, including the red-listed (endangered) California gull and blue-listed (threatened) purple martin.

Background:

According to the EDI biophysical assessment, a total of 67 bird species were recorded at the Prospect Lake Golf Course hotspot (eBird 2017). Prospect Lake provided some of the few remaining breeding areas for the blue-listed Purple Martin (*Progne subis*) in the province (CRD 2017). The blue-listed Barn

Swallow (*Hirundo rustica*), Double-Crested Cormorant (*Phalacrocorax auritus*), and Olive-sided Flycatcher (*Contopus cooperi*) were all recorded on the site, as well as the COSEWIC and SARA-[1]listed Common Nighthawk (*Chordeiles minor*) and Western Screech-owl (*Megascops kennicottii*).

Method:

To assess the impact of the project on bird species diversity and population, a comprehensive approach was employed involving on-line data collection, cross-referencing, and comparison over different time periods. Initially, bird species observed and their numbers were documented in January 2018 using two primary sources: eBird, a widely used online database for bird observations, and project documents, specifically the biophysical assessment completed by EDI Environmental Dynamics. eBird list of observed species was used between January 2018 until August 2022 before the opening of the project. These lists from eBird and the biophysical assessment were cross-referenced to ensure accuracy and completeness, resolving any discrepancies between the sources. This step was crucial to create a reliable baseline for bird species observed on the site.

Subsequently, a new list of bird species observed was compiled for the period from August 2022 to July 2024. This list was generated using similar methods, relying on updated eBird data and ongoing project documentation to maintain consistency in data collection. The initial list of bird species from January 2018, and the complied list from eBird between January 2018 until August 2022 was then compared to the list from August 2022 to July 2024. This comparison involved analyzing the changes in species diversity and the number of individual species observed.

Calculations:

The two lists of bird species collected are shown in the tables below:

[1] COSEWIC was established in 1977 to provide Canadians with a single, scientifically sound classification of wildlife species at risk of extinction. In 2003, the Species at Risk Act (SARA) was proclaimed. The purpose of SARA is to protect wildlife species at risk in Canada.

Bird Species Observed from August 2022 until September 2024			Bird Species Observed in January 2018		
English Name	**Scientific Name**	**BC List**	**English Name**	**Scientific Name**	**BC List**
American Coot	*Fulica americana*	Yellow	American Goldfinch	*Spinus tristis*	Yellow
American Crow	*Corvus brachyrhynchos*	Yellow	American Robin	*Turdus migratorius*	Yellow
American Goldfinch	*Spinus tristis*	Yellow	American Wigeon	*Mareca americana*	Yellow
American Robin	*Turdus migratorius*	Yellow	Anna's Hummingbird	*Calypte anna*	Yellow
Anna's Hummingbird	*Calypte anna*	Yellow	Bald Eagle	*Haliaeetus leucocephalus*	Yellow
Bald Eagle	*Haliaeetus leucocephalus*	Yellow	Barn Swallow	*Hirundo rustica*	Blue
Barn Swallow	*Hirundo rustica*	Blue	Barred Owl	*Strix varia*	Yellow
Barred Owl	*Strix varia*	Yellow	Belted Kingfisher	*Megaceryle alcyon*	Yellow
Belted Kingfisher	*Megaceryle alcyon*	Yellow	Bewick's Wren	*Thryomanes bewickii*	Yellow
Bewick's Wren	*Thryomanes bewickii*	Yellow	Black-headed Grosbeak	*Pheucticus melanocephalus*	Yellow
Black-headed Grosbeak	*Pheucticus melanocephalus*	Yellow	Brown Creeper	*Certhia americana*	Yellow
Black-throated Gray Warbler	*Setophaga nigrescens*	Yellow	Brown-headed Cowbird	*Molothrus ater*	Yellow
Brown Creeper	*Certhia americana*	Yellow	Bufflehead	*Bucephala albeola*	Yellow
Brown-headed Cowbird	*Molothrus ater*	Yellow	Bushtit	*Psaltriparus minimus*	Yellow
Bushtit	*Psaltriparus minimus*	Yellow	Canada Goose	*Branta canadensis*	Yellow
California Gull	*Larus californicus*	Red	Canvasback	*Aythya valisineria*	Yellow
California Quail	*Callipepla californica*	Exotic	Cedar Waxwing	*Bombycilla cedrorum*	Yellow
Canada Goose	*Branta canadensis*	Yellow	Chestnut-backed Chickadee	*Poecile rufescens*	Yellow
Cassin's Vireo	*Vireo cassinii*	Yellow	Chipping Sparrow	*Spizella passerina*	Yellow
Cedar Waxwing	*Bombycilla cedrorum*	Yellow	Common Merganser	*Mergus merganser*	Yellow
Chestnut-backed Chickadee	*Poecile rufescens*	Yellow	Common Nighthawk	*Chordeiles minor*	Yellow
Chipping Sparrow	*Spizella passerina*	Yellow	Common Raven	*Corvus corax*	Yellow
Common Nighthawk	*Chordeiles minor*	Yellow	Dark-eyed Junco	*Junco hyemalis*	Yellow

Common Raven	*Corvus corax*	Yellow	Double-crested Cormorant	*Phalacrocorax auritus*	Blue
Common Yellowthroat	*Geothlypis trichas*	Yellow	Downy Woodpecker	*Picoides pubescens*	Yellow
Cooper's Hawk	*Accipiter cooperii*	Yellow	Glaucous-winged Gull	*Larus glaucescens*	Yellow
Dark-eyed Junco	*Junco hyemalis*	Yellow	Golden-crowned Kinglet	*Regulus satrapa*	Yellow
Double-crested Cormorant	*Nannopterum auritum*	Blue	Golden-crowned Sparrow	*Zonotrichia atricapilla*	Yellow
Downy Woodpecker	*Dryobates pubescens*	Yellow	Great Blue Heron	*Ardea Herodias fannini*	Blue
Eurasian Collared-Dove	*Streptopelia decaocto*	Exotic	Great Horned Owl	*Bubo virginianus*	Yellow
European Starling	*Sturnus vulgaris*	Exotic	Hooded Merganser	*Lophodytes cucullatus*	Yellow
Evening Grosbeak	*Coccothraustes vespertinus*	Yellow	House Finch	*Haemorhous mexicanus*	Yellow
Glaucous-winged Gull	*Larus glaucescens*	Yellow	Killdeer	*Charadrius vociferus*	Yellow
Golden-crowned Kinglet	*Regulus satrapa*	Yellow	Mallard	*Anas platyrhynchos*	Yellow
Golden-crowned Sparrow	*Zonotrichia atricapilla*	Yellow	Marsh Wren	*Cistothorus palustris*	Yellow
Great Blue Heron	*Ardea herodias*	Blue	Northern Flicker	*Colaptes auratus*	Yellow
Great Horned Owl	*Bubo virginianus*	Yellow	Northern Saw-whet Owl	*Aegolius acadicus*	Yellow
Greater Yellowlegs	*Tringa melanoleuca*	Yellow	Northern Shoveler	*Spatula clypeata*	Yellow
Green-winged Teal	*Anas crecca*	Yellow	Northwestern Crow	*Corvus caurinus*	Yellow
Hairy Woodpecker	*Dryobates villosus*	Yellow	Olive-sided Flycatcher	*Contopus cooperi*	Blue
House Finch	*Haemorhous mexicanus*	Yellow	Orange-crowned Warbler	*Oreothlypis celata*	Yellow
House Wren	*Troglodytes aedon*	Yellow	Osprey	*Pandion haliaetus*	Yellow
Hutton's Vireo	*Vireo huttoni*	Yellow	Pacific Wren	*Troglodytes pacificus*	Yellow
MacGillivray's Warbler	*Geothlypis tolmiei*	Yellow	Pacific-slope Flycatcher	*Empidonax difficilis*	Yellow
Mallard	*Anas platyrhynchos*	Yellow	Pied-billed Grebe	*Podilymbus podiceps*	Yellow
Merlin	*Falco columbarius*	Yellow	Pileated Woodpecker	*Dryocopus pileatus*	Yellow
Northern Flicker	*Colaptes auratus*	Yellow	Pine Siskin	*Spinus pinus*	Yellow
Northern Pygmy-Owl	*Glaucidium gnoma*	Yellow	Purple Finch	*Haemorhous purpureus*	Yellow

Northern Saw-whet Owl	*Aegolius acadicus*	Yellow	Red Crossbill	*Loxia curvirostra*	Yellow
Olive-sided Flycatcher	*Contopus cooperi*	Blue	Red-breasted Nuthatch	*Sitta canadensis*	Yellow
Orange-crowned Warbler	*Oreothlypis celata*	Yellow	Red-breasted Sapsucker	*Sphyrapicus ruber*	Yellow
Pacific Wren	*Troglodytes pacificus*	Yellow	Red-tailed Hawk	*Buteo jamaicensis*	Yellow
Pied-billed Grebe	*Podilymbus podiceps*	Yellow	Red-winged Blackbird	*Agelaius phoeniceus*	Yellow
Pileated Woodpecker	*Dryocopus pileatus*	Yellow	Ring-necked Duck	*Aythya collaris*	Yellow
Pine Siskin	*Spinus pinus*	Yellow	Ruby-crowned Kinglet	*Regulus calendula*	Yellow
Purple Finch	*Haemorhous purpureus*	Yellow	Rufous Hummingbird	*Selasphorus rufus*	Yellow
Purple Martin	*Progne subis*	Blue	Song Sparrow	*Melospiza melodia*	Yellow
Red Crossbill	*Loxia curvirostra*	Yellow	Tree Swallow	*Tachycineta bicolor*	Yellow
Red-breasted Merganser	*Mergus serrator*	Yellow	Turkey Vulture	*Cathartes aura*	Yellow
Red-breasted Nuthatch	*Sitta canadensis*	Yellow	Varied Thrush	*Ixoreus naevius*	Yellow
Red-breasted Sapsucker	*Sphyrapicus ruber*	Yellow	Violet-green Swallow	*Tachycineta thalassina*	Yellow
Red-tailed Hawk	*Buteo jamaicensis*	Yellow	Western Screech-Owl	*Megascops kennicottii kennicottii*	No Status
Red-winged Blackbird	*Agelaius phoeniceus*	Yellow	White-crowned Sparrow	*Zonotrichia leucophrys*	Yellow
Ring-necked Duck	*Aythya collaris*	Yellow	Yellow Warbler	*Setophaga petechia*	Yellow
Ruby-crowned Kinglet	*Regulus calendula*	Yellow	Yellow Rumped Warbler	*Setophaga coronata*	Yellow
Rufous Hummingbird	*Selasphorus rufus*	Yellow	**Bird species observed between January 2018 until August 2022 that were not mentioned previously**		
Savannah Sparrow	*Passerculus sandwichensis*	Yellow	House Sparrow	*Passer domesticus*	Yellow
Short-billed Gull	*Larus brachyrhynchus*	Yellow	Common Loon	*Gavia immer*	Yellow
Song Sparrow	*Melospiza melodia*	Yellow	Trumpeter Swan	*Cygnus buccinator*	Yellow
Spotted Towhee	*Pipilo maculatus*	Yellow	Fox Sparrow	*Passerella iliaca*	Yellow
Steller's Jay	*Cyanocitta stelleri*	Yellow	Brewer's Blackbird	*Euphagus cyanocephalus*	Yellow
Swainson's Thrush	*Catharus ustulatus*	Yellow	Mourning Dove	*Zenaida macroura*	Yellow
Townsend's Warbler	*Setophaga townsendi*	Yellow			

Tree Swallow	*Tachycineta bicolor*	Yellow			
Turkey Vulture	*Cathartes aura*	Yellow			
Violet-green Swallow	*Tachycineta thalassina*	Yellow			
Virginia Rail	*Rallus limicola*	Yellow			
Warbling Vireo	*Vireo gilvus*	Yellow			
Western Flycatcher	*Empidonax difficilis*	Yellow			
Western Tanager	*Piranga ludoviciana*	Yellow			
White-crowned Sparrow	*Zonotrichia leucophrys*	Yellow			
Willow Flycatcher	*Empidonax traillii*	Yellow			
Wilson's Warbler	*Cardellina pusilla*	Yellow			
Wood Duck	*Aix sponsa*	Yellow			
Yellow Warbler	*Setophaga petechia*	Yellow			
Yellow-rumped Warbler	*Setophaga coronata*	Yellow			

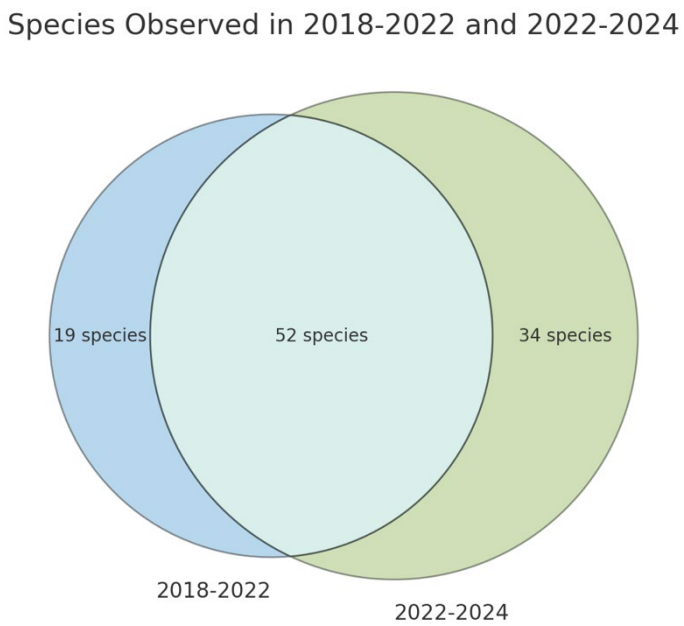

Figure 8: Venn diagram of observed species. 19 species were observed on site between 2018-2022 that haven't been observed yet since that period; 52 species were observed before and after the site opening; 34 new species were observed after the project opening.

Bird Species Observed ONLY from August 2022 until September 2024			Bird Species Observed ONLY in January 2018		
English Name	**Scientific Name**	**BC List**	**English Name**	**Scientific Name**	**BC List**
American Coot	*Fulica americana*	Yellow	American Wigeon	*Mareca americana*	Yellow
American Crow	*Corvus brachyrhynchos*	Yellow	Bufflehead	*Bucephala albeola*	Yellow
Black-throated Gray Warbler	*Setophaga nigrescens*	Yellow	Canvasback	*Aythya valisineria*	Yellow
California Gull	*Larus californicus*	Red	Common Merganser	*Mergus merganser*	Yellow
California Quail	*Callipepla californica*	Exotic	Hooded Merganser	*Lophodytes cucullatus*	Yellow
Cassin's Vireo	*Vireo cassinii*	Yellow	Killdeer	*Charadrius vociferus*	Yellow
Common Yellowthroat	*Geothlypis trichas*	Yellow	Marsh Wren	*Cistothorus palustris*	Yellow
Cooper's Hawk	*Accipiter cooperii*	Yellow	Northern Shoveler	*Spatula clypeata*	Yellow
Eurasian Collared-Dove	*Streptopelia decaocto*	Exotic	Northwestern Crow	*Corvus caurinus*	Yellow
European Starling	*Sturnus vulgaris*	Exotic	Osprey	*Pandion haliaetus*	Yellow
Evening Grosbeak	*Coccothraustes vespertinus*	Yellow COSEWIC: SC, SARA: 1-SC	Pacific-slope Flycatcher	*Empidonax difficilis*	Yellow
Greater Yellowlegs	*Tringa melanoleuca*	Yellow	Varied Thrush	*Ixoreus naevius*	Yellow
Green-winged Teal	*Anas crecca*	Yellow	Western Screech-Owl	*Megascops kennicottii kennicottii*	No Status
Hairy Woodpecker	*Dryobates villosus*	Yellow	**Bird species observed ONLY between January 2018 until August 2022 that were not mentioned previously**		
House Wren	*Troglodytes aedon*	Yellow	House Sparrow	*Passer domesticus*	Yellow
Hutton's Vireo	*Vireo huttoni*	Yellow	Common Loon	*Gavia immer*	Yellow
MacGillivray's Warbler	*Geothlypis tolmiei*	Yellow	Trumpeter Swan	*Cygnus buccinator*	Yellow
Merlin	*Falco columbarius*	Yellow COSEWIC: NAR	Fox Sparrow	*Passerella iliaca*	Yellow
Northern Pygmy-Owl	*Glaucidium gnoma*	Yellow	Brewer's Blackbird	*Euphagus cyanocephalus*	Yellow
Purple Martin	*Progne subis*	Blue	Mourning Dove	*Zenaida macroura*	Yellow
Red-breasted Merganser	*Mergus serrator*	Yellow			
Savannah Sparrow	*Passerculus sandwichensis*	Yellow			

Short-billed Gull	*Larus brachyrhynchus*	Yellow			
Spotted Towhee	*Pipilo maculatus*	Yellow			
Steller's Jay	*Cyanocitta stelleri*	Yellow			
Swainson's Thrush	*Catharus ustulatus*	Yellow			
Townsend's Warbler	*Setophaga townsendi*	Yellow			
Virginia Rail	*Rallus limicola*	Yellow			
Warbling Vireo	*Vireo gilvus*	Yellow			
Western Flycatcher	*Empidonax difficilis*	Yellow			
Western Tanager	*Piranga ludoviciana*	Yellow			
Willow Flycatcher	*Empidonax traillii*	Yellow			
Wilson's Warbler	*Cardellina pusilla*	Yellow			
Wood Duck	*Aix sponsa*	Yellow			

Sources:

https://ebird.org/hotspot/L553662/bird-list?yr=cur

EDI biophysical assessment report, 2018.

Limitations:

- Bird populations can fluctuate due to seasonal migrations and annual variations in climate conditions, which might not reflect the actual impact of the project.

- Differences in the skill levels and efforts of observers during the initial and subsequent surveys can affect the accuracy and consistency of the data collected.

- eBird and similar databases rely on voluntary submissions from bird watchers, which can result in incomplete or inconsistent data coverage.

- Some species may be inherently harder to detect due to their behavior, size, or camouflage, leading to underreporting in both the initial and subsequent surveys.

- The method relies on snapshots of data at two distinct time points (2018 and 2022-2024), which may not capture long-term trends and fluctuations in bird populations.

Social Benefits

To evaluate the social benefits of this project, our team focused on gathering primary qualitative data, complemented by secondary data sources. Qualitative methods were particularly well-suited to capturing the nuanced, lived experiences of participants and aligned with the project's mission and vision. Capturing personal narratives and subjective perspectives was central to our approach, as these offer insights that statistical data or surveys often overlook. While quantitative methods can reveal general trends or measurable outcomes, they may fail to convey the depth of individual experiences—such as the emotional impact of participating, the development of interpersonal connections, or the sense of belonging cultivated through the programs. Qualitative data bridges this gap, providing rich, context-specific insights that reflect not only what participants experience but also how and why these experiences are meaningful to them. This layered understanding was essential in our approach for evaluating the full scope of social benefits generated by this project.

Our qualitative data collection involved three main strategies:

1. Semi-structured interviews conducted both in person and online.
2. A small focus group discussion.
3. An on-site engagement session with participants and staff.

Before initiating these activities, our research team secured the necessary approvals from the University of Victoria's Human Research Ethics (HRE) board to ensure ethical compliance in all interactions with human subjects (application number #24-0134).

The following section briefly explains each strategy adopted for data collection in this research.

Semi-structured interviews:
Semi-structured interviews were chosen as a key method to capture personal stories and in-depth experiences related to various themes essential to the project: accessibility, experience and engagement, inclusion and sense of belonging, connection to nature, knowledge and education, and mental, emotional, and physical well-being. This approach provided the flexibility to explore these themes while allowing participants the freedom to share personal reflections and insights.

The target population for the interviews included individuals who regularly interact with the indoor and outdoor spaces at Power To Be. This group consisted of program facilitators, lead members, staff members and organizers, who were able not only to reflect on their own experiences but also to offer insights into how other participants engage with the spaces. Their dual perspective—both as users and facilitators—was invaluable in providing a well-rounded understanding of the project's social impact. Users were recruited with the support of Power To Be staff, who facilitated outreach through their network. An invitation letter and a letter of consent were distributed to staff members, volunteers, and community members via third-party contacts within the organization. These documents outlined the

purpose of the research, the participants' role, and their rights, including assurances of confidentiality and the voluntary nature of their participation.

A total of 11 interviews were conducted—8 in-person and 3 online—allowing for flexibility in participation based on interviewees' availability and preference. To respect participants' time and maintain their engagement, most interviews were designed to last approximately 30 minutes. However, the interview with Power To Be's CEO was more extensive, running for an hour to explore institutional perspectives. Each interview session began with a consent process and a brief explanation of the study's objectives to ensure participants were comfortable and informed. The interviews were structured around one key question per thematic category (e.g., accessibility or well-being), followed by three or four follow-up questions where appropriate (attached in appendix), depending on the flow of conversation. This format allowed the discussions to evolve naturally, encouraging participants to share richer, more detailed responses.

Visualizations were provided during the sessions, including maps, photographs, and a site diagram with a legend identifying key activity spots. These tools facilitated discussion by helping participants recall specific experiences, orient their reflections, and communicate spatial aspects of their interactions with the environment. The interviews were audio-recorded to ensure accurate transcription and analysis. In some instances, photographs were taken during the conversations (with participants' consent) to further document the setting and capture relevant contextual details.

Figure 9: Research Assistant Shima Tajarloo (left) conducting in person interviews with staff member Sylvia Storry on site.

Focus group:

To gain insights from participants who experience social, physical, or psychological barriers, a focus group was selected as a suitable data collection method. This approach encouraged engagement through group dynamics and was also logistically easier to coordinate. The environmental stewardship and educational leads at Power To Be facilitated the organization of the focus group, which was held with participants from the Landscaping and Restoration Employment Program. This 12-week program focuses on developing landscaping and restoration skills alongside employment skills to prepare participants for opportunities in the landscaping sector while also focusing on personal development—making it an ideal group for exploring the themes of accessibility, inclusion, well-being, and connection to community and nature.

The original plan was to hold the session with eight participants from the 2024 cohort. However, due to scheduling conflicts and participant availability, the focus group took place with four participants. While this smaller group still provided valuable insights, the reduced sample size limited the diversity of perspectives and may not fully capture the breadth of experiences across the entire program. Nevertheless, the group size allowed for more personalized engagement and deeper discussions with participants. The focus group was conducted over the course of one hour and involved three members of our research team, three facilitators from Power To Be, and the four participants. The collaborative presence of Power To Be facilitators helped create a comfortable and familiar environment, encouraging participants to share their experiences. Focus group questions and potential follow-ups are included in the appendix.

Figure 10: Focus group session with participants and staff members. Image used with permission from participants.

The themes explored in the focus group mirrored those addressed in the semi-structured interviews. However, to accommodate participants' diverse needs and ensure engagement, the themes were simplified and adapted. We employed interactive tools such as emotion cards, maps, and site diagrams to facilitate discussions in an accessible and engaging way. The session began with icebreaker questions, followed by a series of interactive activities to explore the core themes. Participants were invited to use emotion cards to express how they felt about their experiences in each theme or raise their hands to respond to questions, making it easier for those who preferred non-verbal engagement. Use of stickers and markers to identify significant locations on maps, encouraged participants to visually share meaningful spaces and moments. Reference photographs and a site diagram that highlighted key activity spots, providing visual cues to facilitate memory recall and discussion. These activities allowed participants to engage at their own comfort level, creating a more inclusive and participatory environment.

Engagement session:

To gather additional responses from a broader group, an on-site engagement session was held during a "Have A Go Day" event at Power To Be. This inclusive outdoor event offers a variety of activities, such as hiking (with and without TrailRiders), paddlesports, and nature-based adventures, inviting participants, their families, and the wider community to connect with nature in a safe, fun, and welcoming environment. It also serves as an opportunity for attendees to meet staff, volunteers, and community partners while trying new experiences.

Figure 11: Research assistant Shima Tajarloo hosting an engagement session and activity during a "Have A Go Day" event on site.

The engagement session aimed to further explore three key themes—accessibility, engagement and experience, and emotional well-being—through interactive, participant-centered activities. A table was set up outdoors, providing participants with hands-on activities and visual prompts to encourage engagement. To make participation easy and enjoyable, the questions were simplified and adapted similarly to the focus group approach, incorporating interactive elements such as emotion cards, markers, and stickers. This method allowed for spontaneous participation from individuals already attending the event, increasing the reach of the data collection. In total, 20 additional responses were gathered during the session, providing valuable insights that complemented the data from both interviews and the focus group. The open and informal nature of the activity fostered a relaxed, engaging environment, encouraging participants to share their thoughts and experiences more freely.

Social benefits Overall Structure					
Primary data	**Accessibility**	Contributing factors	Adaptation, emergence	Barriers	Suggestions
	Experience & engagement	Contributing factors	Adaptation, emergence	Barriers	Suggestions
	Inclusion	Contributing factors			Suggestions
	Sense of belonging	Contributing factors			
	Connection to Nature	Contributing factors and landscape features	*Mapping of reported favorite spots on landscape*		
	Mental wellbeing	Contributing factors			
	Physical wellbeing	Contributing factors			
	Emotional wellbeing	***Positive emotions card activity mapping***			
	Knowledge & education		Education outcomes		Suggestions
Secondary data	**Statistics**	Number of participants hosted	Number of events/activities/ Programs offered	Number of collaborating partners	

Increased the number of annual participant visits by 80% from 2021 to 2023—with 535 more total hours spent in nature. The site hosted 2,494 participants and 428 programs in 2023, offering 11 different outdoor recreational activities for all age groups.

Method:

The data utilized for reporting the increase in participant engagement and program offerings was obtained from secondary statistical sources provided by the Social Content and Engagement Specialist at Power To Be. Additionally, publicly accessible data from Power To Be's annual impact and financial reports, available on their official website, were incorporated into the analysis.

This analysis compares the number of programs offered, participant visits, and hours spent in nature between the years **2021**, **2022**, and **2023**—with a particular focus on the period before and after the opening of Power To Be's **Prospect Lake site** in 2022. The comparison is drawn by evaluating key performance indicators (KPIs) from 2021, the year prior to the site's opening, with subsequent years (2022 and 2023), during which the new site became operational.

The data for each year is as follows:

- **2021** (pre-Prospect Lake site):

Participant visits: **1,384**

Programs offered: **477**

Total hours spent in nature: **1,031**

- **2022** (post-Prospect Lake site opening):

Participant visits: **1,833**

Programs offered: **349**

Total hours spent in nature: **1,218**

- **2023**:

Participant visits: **2,494**

Programs offered: **428**

Total hours spent in nature: **1,565.5**

Calculations:

The reported benefit is based on comparing the highest recorded numbers between 2022 and 2023. This approach ensures that the maximum impact of the new site is reflected in the analysis. Specifically, the comparison identifies an 80% increase in participant visits from 2021 to 2023, along with an additional 534.5 hours spent in nature by participants, emphasizing the growing engagement and program expansion since the opening of the Prospect Lake site.

To calculate the percentage increase from 1,384 visits in 2021 to 2,494 visits in 2023, we use the following formula:

Percentage Increase=New Value−Old Value/Old Value×100

Substituting the values:

Percentage Increase=2,494−1,384 1,384×100=1,1101,384×100≈80.23%

So, the percentage increase in visits from 2021 to 2023 is approximately 80.23%.

Sources:

Power To Be Annual Impact and Financial Reports for 2021, 2022 and 2023.

https://issuu.com/powertobe/docs/2023_impact_report_final?fr=xKAE9_zU1NQ

https://powertobe.ca/annual-reports-financials/

Limitations:

- The comparison only covers the years 2021, 2022, and 2023, during the COVID-19 pandemic which may not capture long-term trends or variability beyond this period.
- The method uses the highest values recorded between 2022 and 2023, which may not accurately reflect the year-to-year fluctuations or the full impact of the programs.
- The analysis does not account for potential external factors (e.g., weather conditions, changes in funding, or broader societal impacts like the pandemic) that could influence participation and program delivery in these years.
- If reporting methods or criteria changed between years, the comparability of data across 2021, 2022, and 2023 may be affected.
- Since the Prospect Lake site opened in August 2022, the data from the first part of the year reflects pre-opening conditions. This means that the full impact of the site may not be represented in 2022 data.

Connects people to nature through passive and active experiences. Interviewees reported feeling most connected to nature through their everyday activities (for interviewed staff and volunteers), and through outdoor recreation and nature-based group activities (for interviewed participants). Interviewees also described the smooth transition from built infrastructure to natural areas as promoting connection to nature. Participants reported feeling most connected to the natural environment at lakefront locations like the dock, roundhouse, and lookout.

Method:

To explore participants' connection to nature, one of the main interview and focus group questions focused on whether and how the site supports this connection compared to previous experiences, such as other workplaces or outdoor settings. Responses from these interviews and focus group discussions were categorized into themed groups based on recurring topics, with the frequency of each theme noted.

In a subsequent step, participants were provided with a conceptual map of the site, which included icons marking various points across the landscape. Each participant was invited to identify up to two favorite spots on the map where they felt most connected to nature. This interactive activity was also conducted during the engagement session on "Have a Go Day," allowing participants to select meaningful locations and articulate why these spots resonated with them.

Figure 12: This conceptual map of the landscape was used during the engagement session on "Have a go day"; participants used pins to indicate their favorite spots on the landscape where they felt most connected to nature.

In total, 30 responses were gathered in this mapping exercise, providing a spatial understanding of the most valued natural areas across the site. The resulting map (see below) visually represents these responses, highlighting key areas that foster a sense of connection to nature and offering insights into the landscape features most impactful for participants. This approach enriches the qualitative data by adding a geographic dimension, revealing patterns in how different parts of the site contribute to nature engagement.

Figure 13: Mapping activity during the focus group session with participants. Image used with participant permission.

Calculations:

Contributing factors	Description	Frequency
Space usage for everyday activities	Utilizing outdoor spaces for activities during regular days such as walking meetings, lunch breaks out by the creek, and quiet moments by the lake or in the forest encourages routine engagement with nature, fostering a deeper sense of connection to the environment. Majority of interviewees and participants indicated nature is integrated within their daily like since being a part of the organization.	9
Participation in nature-based group activities	Involvement in activities like restoration work, group weeding (part of the landscaping and restoration program), or group canoeing allows participants to actively engage with the land and each other,	8

	reinforcing a hands-on relationship with the ecosystem and promoting environmental stewardship that enhances connection to nature.	
Smooth transition from built infrastructure to natural areas	Interviewees and participants also mentioned the design of the site facilitates an easy flow from buildings to natural spaces, making it comfortable for participants to move seamlessly between indoor and outdoor environments enhancing easy connection to natural areas, either physically or mentally.	5
Playground and spontaneous play spaces	The built playground and other designated play areas that were built by participants themselves on site offer opportunities for all ages to engage in healthy risk-taking and playful exploration in nature, fostering a sense of joy and freedom within the natural setting. Building together in a fun, stress free manner with natural materials has enabled further connection to nature.	3
"Nature buffet" of diverse activity options	The site provides a variety of natural spaces and activities, allowing participants to choose their level of engagement in a relaxed, low-pressure environment, which supports individual exploration and personal choice of connection to nature.	3
Native Garry Oak ecosystem	Having an on-site Garry Oak ecosystem offers a unique educational and experiential opportunity to connect with native flora and understand local biodiversity, enhancing participants' ecological awareness. During the spring the camas bulbs within these meadows attracts members and participants at Power To Be to connect with the local ecosystem on their own terms and enhances connection to nature.	2

-Relevant quotes-

"I think that just working here has made nature part of every single hour of every single day in a way that I haven't had necessarily before. And so I would say that I feel more connected to nature since working here because of how we're using the spaces…"

"Nature is for everyone, It's like the sense of stability to help you understand these complex things and you can utilize them in your life, how it fits in your life"

"Up near the yurt, there's this gorgeous Garry Oak tree, and every season it's surrounded by a variety of wildflowers. As a teachable space, it's beautiful—people see the Garry Oak and think, 'Wow, look at that!' Then in the spring, they're struck by all the flowers around it, and it just makes people pause right away!"

The analysis of interview responses highlights that Power To Be's site design and programming successfully integrate nature into daily routines, creating a deep and personal connection to the environment. Regular use of outdoor spaces for everyday activities, hands-on nature-based group tasks through programs such as the landscaping and restoration program, or partnerships with the nature school or rocky point birds observatory, and the seamless transition between built and natural areas make nature an integral part of participants' experiences. The site's varied activity options and unique

features, like the native Garry Oak ecosystem, further encourage individual exploration and environmental engagement, supporting both personal and community connections to nature. Most responses indicated that they engage in outdoor activities and have connection to nature outside of the organization but being on site has allowed them to integrate nature as part of their daily lifestyle and has enabled deeper connections to land and place.

In conclusion, Power To Be's intentional integration of natural elements into everyday activities and site features significantly enhances participants' connection to the environment. The design builds a unique balance of structure and flexibility, allowing individuals to engage with nature at their own pace. This approach not only deepens personal connections to the natural world but also cultivates a shared sense of environmental stewardship among participants.

Figure 14: Conceptual map of the site landscape, with red circles that correspond to the number of cases picked for each area. The size of the circles represent the number of cases.

Picked spots	**Frequency**
Dock and lakeside	8
Roundhouse	6
Boardwalk lookout	4
Yurt	3
Nature playground	2

Totem poles	2
Garry Oak meadows	2
Wetlands	2
Play forest	1

The data in the conceptual map and frequency table illustrate which spots on the Power To Be site create the strongest sense of connection to nature among participants. The dock and lakeside areas emerged as the most frequently selected spots (8 cases), indicating that water-based environments may offer a particularly resonant experience for participants, possibly due to the tranquility and immersion these areas provide. The Roundhouse and Boardwalk Lookout also stood out, with 6 and 4 cases respectively, suggesting that participants are drawn to areas that offer scenic views or social gathering spaces that facilitate both solitude and shared experiences in nature. Other frequently selected spots include the Yurt and Nature Playground, indicating that semi-structured spaces where participants can engage in various activities or retreat into nature are also valued for enhancing their nature connection. The Garry Oak meadows and Wetlands received moderate selection highlighting the importance of biodiverse areas that offer unique ecological experiences and seasonal changes.

The distribution of chosen spots underscores the diversity of natural experiences valued by participants, from water-centric locations to biodiverse ecosystems and social gathering spots. These findings suggest that Power To Be's landscape design creates a variety of connections to nature, appealing to different preferences for solitude, social interaction, and sensory engagement with diverse ecological environments.

Source:

Primary data gathered through interviews, focus group and engagement session on site.

Limitations:

- The number of cases is insufficient to draw definitive conclusions about the most impactful areas on-site.
- Participants may have chosen familiar or accessible spots rather than exploring the entire site, skewing results towards more commonly visited areas.
- The frequency of chosen spots may vary seasonally, as participants might favor different locations based on weather, vegetation, or wildlife activity at different times of the year.
- The specific reasons why participants chose certain spots are not fully captured, making it challenging to understand the nuanced factors influencing their choices.
- The unique characteristics of the Power To Be site may limit the generalizability of findings to other outdoor organizations or programs.

Enhances mental well-being through regular exposure to natural surroundings, promoting nervous system regulation, reducing work-related stress, and encouraging a supportive and collaborative environment. These factors were frequently highlighted by interviewed staff and participants as key contributors to their overall mental well-being.

Improves physical well-being by offering outdoor recreational programs such as canoeing, kayaking, paddleboarding, hiking, and camping. Staff and volunteers also reported engaging in physical tasks while running programs on-site, encouraging movement throughout the day.

Method:

In the interviews and focus groups, two primary questions focused on the site's role and impact on participants' mental and physical well-being. After collecting responses, the transcriptions were initially coded to identify recurring themes. Responses with similar content were then grouped into main categories, highlighting the shared experiences and insights of participants. The table below presents these core themes, along with the frequency of mentions, providing a clearer understanding of the factors within the site that contribute to mental and physical well-being.

Calculations:

Contributing factors	Description	Frequency
Mental wellbeing		
Immersive Natural Setting	Regular exposure to the natural surroundings on-site creates a sense of calmness and enhances mental clarity, helping individuals feel more regulated in their nervous system.	6
Social Connections and Inspiring Environment	The supportive and collaborative environment and inspiration through meaningful connections with peers and the surroundings reduces work-related stress for staff members and volunteers on site.	4
Human-Oriented Workplace Mindset	A focus on individual well-being and a people-centered approach at work contribute to an uplifting atmosphere.	1
Distance from City Hustle	The site's location, away from the city's fast-paced environment, allows individuals to disconnect and	1

	experience a slower, more mindful pace of life that contributes to their mental wellbeing.	
Physical wellbeing		
Work-Related Physical Activities	Opportunities for staff and volunteers to engage in physical tasks, such as meetings, running programs on site offer physical exercise and encourage physical movement during the day.	6
Outdoor Recreational Opportunities	Access to outdoor activities like hiking, canoeing, and paddle boarding provides members with an opportunity to exercise.	4
Site Maintenance and Restoration Tasks	Tasks like weeding, mowing, and restoration activities provide hands-on engagement with the land, promoting physical activity.	2

-Relevant quotes for mental wellbeing-

"It's hard not to be happy, and it's hard to, like, have a bad day. Even the days that I showed up and I was like, oh my god… I don't want to be here, I got here and I was like, Oh, I'm okay, it feels good to work."

"I feel like it has been life-changing—truly transformative and exactly what I needed at that moment. It helped in my healing so much. While I was here to learn and support participants, my own self-exploration and connection to nature was also encouraged, which was really meaningful."

"You know, when I need 10 minutes away from my computer, it's not going to the coffee shop to get a donut, it's going down to the dock and putting my feet in the lake. It's much more grounding, and it's a lot, a lot different, a more positive way to kind of take those breaks in space."

"Every job has stressful moments, but it's hard to stay in a bad mood here. I really feel that the environment makes a huge difference. Just looking outside, or even better, walking around, helps me forget everything."

-Relevant quotes for physical wellbeing-

"I think that I joined the organization as a pretty active person, and I think I've only become more so since being here. And I think it's just how we use the spaces, like it's normal for us to go kayaking or canoeing just for fun. We go swimming at lunch, we walk for our meetings, as a result I'm outside a lot more. So I'm more active than I was when I got here."

“I've definitely seen some folks say, you know, like I couldn't, I couldn't have done this hike two years ago, but now that I've been coming here once a month, I'm able to keep up or do this longer thing and it brings back that sense of pride and accomplishment that they've done something great for themselves”

"Compared to my last office, where there was nowhere to walk, here I have to go out and move around. I work in social media, so sometimes I go out to take pictures and do a loop around the building. It feels good to move, especially after sitting for a while. I'm a pretty active person, but it's nice that there's a minimum level of activity built into the day here."

The responses highlight the site’s positive impact on both mental and physical well-being. Participants frequently noted the benefits of being immersed in a natural setting, which promotes calmness, mental clarity, and allows nervous system regulation. Additionally, the supportive social environment on-site helps with stress reduction and a sense of community, while the site's distance from urban areas allows for relaxation away from the city hustle. Although every job comes with stress, staff members noted that the landscape design and natural surroundings help reduce work related stress more easily compared to other office settings they worked in. On the physical side, work-related tasks, outdoor recreational opportunities, and restoration activities provide ample chances for exercise, movement, and physical engagement with the land. These factors collectively contribute to an active and balanced lifestyle for participants and staff alike.

Source:

Primary data gathered through interviews and focus group on site.

Limitations:

- With a small number of participants or focus group members, the findings may not fully represent the experiences of all users.
- Responses are based on individual self-reports, which may be influenced by subjective perceptions and may not accurately reflect overall mental or physical health impacts.
- Without tracking changes over time, it’s challenging to assess the long-term effects of site activities on participants' well-being.
- Responses may be skewed towards positive experiences, as participants who feel negatively may be less inclined to participate in interviews or focus groups.
- Different individuals may engage in diverse site activities, making it hard to generalize well-being impacts across all users without accounting for specific activity types.

Evokes positive emotions contributing to emotional well-being, with 100% of 32 interviewed staff, volunteers, participants, and visitors indicating that they leave Power To Be feeling positive. The top five categories of positive emotions reported were: empathy, interest, enjoyment, assurance, and gratification.

Background:

To understand the emotional well-being of the Power To Be community and capture the nuances of their emotional experiences, the research team explored the range of emotions—negative, neutral, and positive—participants felt while interacting with the site. Specifically, the study focused on analyzing the types and categories of positive emotions elicited by interactions with outdoor and natural environments on-site at Power To Be. By examining these emotional responses in detail, the research aimed to uncover how the natural environment contributed to well-being, emphasizing the diverse range of positive emotions beyond simple pleasure, such as admiration, relaxation, and fascination. This deeper understanding was achieved using the Positive Emotional Granularity Cards as a tool to evaluate and categorize the participants' emotional experiences with greater precision.

Emotions are complex, shaping how we perceive and interact with the world. They play a critical role in influencing behaviors, particularly in terms of approach and avoidance. Positive emotions like joy, admiration, and fascination encourage engagement and exploration, while negative emotions often lead to withdrawal (Desmet, 2012). In the context of human experience, emotions are not just fleeting reactions but are deeply intertwined with how we relate to our environment, products, and others. Desmet's research emphasizes the importance of recognizing the broad spectrum of positive emotions, moving beyond simple pleasure to explore how specific emotions can enhance interactions and well-being.

To support a more granular understanding of positive emotions, the *Positive Emotional Granularity Cards* were developed by the Delft Institute of Positive Design. This card set includes 25 distinct positive emotions, each with its own label, definition, and visual representation, offering a tool for researchers and designers to identify and communicate emotional responses (Yoon et al., 2015). By distinguishing these emotions, the cards help in analyzing the nuanced ways emotions are elicited, and their role in shaping meaningful experiences.

Figure 15: 25 positive emotions card deck, source: Delft Institute of Positive Design.

In this case study, the Positive Emotional Granularity Cards were used to evaluate emotional well-being by identifying the specific positive emotions participants experienced while engaging with the natural environment on-site. By going beyond general feelings of happiness or satisfaction, the study was able to capture more specific emotional states—such as hope, relaxation, and admiration—that contributed to the participants' overall well-being. This approach offered a structured method for assessing emotional experiences, providing deeper insight into how the site design at Power To Be promoted positive emotional health.

Method:

Emotional well-being was evaluated across all three strategies aimed at assessing the social benefits: interviews, focus groups, and the on-site engagement session. Thirty-two responses were gathered in total across all three methods. In the interviews, participants were asked a key question about how they perceived the design of the outdoor space in terms of emotions—whether they felt positive, neutral, or negative while interacting with the environment. This question was followed by related inquiries to explore what specifically contributed to their emotional responses, allowing for a more in-depth

understanding of the factors influencing their well-being. If participants indicated positive emotions, they were then invited to engage in the Positive Emotions Card Deck activity to explore these feelings further.

Figure 16: Research Assistant Shima Tajarloo using the card deck during interviews. Photo by Hayley Johnson.

This method was adapted for the focus group and on-site engagement session by using simplified graphical emotional cards to facilitate easier responses from participants. The goal was to ensure that participants could express their emotional experiences more intuitively and visually. In both settings, similar to the interviews, participants who indicated positive emotions were invited to take part in the card deck activity. The Positive Emotions Card Deck, consisting of 25 distinct emotions, was laid out on a table, and participants were asked to select the top five emotions they felt while entering, interacting with, and leaving the site at *Power To Be*. Although participants were not required to rank their emotions, this method helped capture a range of positive emotional experiences.

Figure 17: Positive emotions card deck activity during the engagement session on site.

In the focus group and engagement session, the method was further simplified by inviting participants to place a small object, such as a rock, candy, or stickers on the cards representing their chosen emotions. This visual and interactive approach mirrored the process used in the interviews and provided consistency across all three methods, ensuring a comprehensive evaluation of the participants' emotional well-being and their emotional responses to the outdoor environment.

Figure 18: Positive emotions card deck activity during the focus group.

Calculations:

When asked whether they felt positive, neutral, or negative when interacting with the landscape and design at Power To Be, all respondents indicated that they felt positive upon entering, interacting with, and leaving the space. During the interviews, this response was expressed verbally. In the focus group, participants were asked to select one of five emoji cards to represent their emotional response. Two of the cards indicated positive emotions, one represented a neutral response, and two indicated negative emotions. All four participants in the focus group chose positive emoji cards. The same approach was used during the engagement session, with participants again selecting from the same set of emoji cards, and all responses were consistently positive.

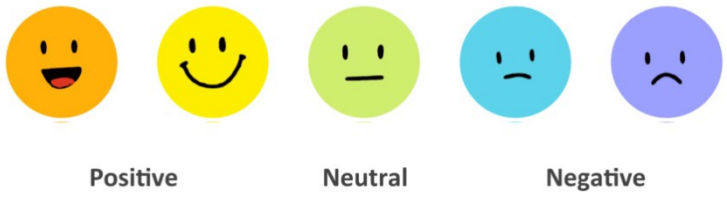

Figure 19: Emoji cards used for participants to indicate their responses.

The table below shows the top 5 emotions picked by participants during the interviews, the focus group sessions and the engagement session combined.

Emotion	Number of cases	Emotion	Number of cases
Inspiration	17	Fascination	6
Joy	16	Energetic	6
Respect	15	Admiration	5
Hope	15	Enchantment	4
Kindness	13	Courage	2
Relaxation	12	Euphoria	2
Confidence	10	Worship	2
Pride	9	Surprise	1
Amusement	9	Desire	1
Relief	7	Sympathy	1
Love	6	Anticipation	1

This simple ranking shows that **inspiration**, **joy**, **respect**, **hope** and **kindness** are among the top 5 emotions picked by participants. Based on the results from the thirty-two participants, the table below presents an analysis of both the top five and other commonly reported emotions experienced during their interaction with the outdoor space at Power To Be.

Emotion	Number of cases	Description/ Analysis
Inspiration	17	This emotion was the most frequently chosen by participants, suggesting that the environment is highly motivating and encourages creative or reflective thinking. The site and community at Power To Be likely has features that stimulate new ideas or perspectives, making participants feel uplifted and inspired.
Joy	16	Joy was a close second, indicating that the outdoor space is perceived as a place of happiness and delight. This suggests that participants found the environment enjoyable and that it contributed to an overall sense of emotional positivity. The participants noted that the activities on-site are perceived as fun, and community dynamics along with the activities on-site are accompanied by humor, openness and laughter.
Respect	15	The fact that respect was a top emotion signifies that the participants may feel the space itself or the work being done at Power To Be reflects a feeling of valuing nature, the site's mission, or the social connections adopted there.
Hope	15	Hope being a top emotion indicates that the site fosters a sense of optimism and future-oriented positivity. This suggests that participants felt encouraged or empowered after spending time at the site, potentially seeing it as a space of possibility and growth.
Kindness	13	Kindness as a commonly reported emotion implies that the space promotes a sense of empathy, connection, and caring. Participants likely felt supported by the environment and possibly by the people they interacted with during their experience.
Other significant emotions		
Relaxation	12	The site is clearly a calming and peaceful environment, with many participants reporting feelings of relaxation, indicating that the space serves as a retreat or sanctuary.
Confidence	10	This reflects that the space helped participants feel more self-assured, suggesting that the design or activities in the environment encouraged a sense of accomplishment or capability.
Pride	9	Pride suggests that participants felt a sense of achievement or self-worth while in the space, likely tied to their involvement in activities or personal reflection. Many participants expressed that being part of the Power To Be community made them feel proud.
Amusement	9	Amusement indicates that participants experienced enjoyment, playfulness, or light-heartedness while engaging with the space. This suggests that the environment fostered moments of fun and entertainment, allowing participants to feel relaxed and entertained during their time at Power To Be.

Desmet's (2012) paper categorized the 25 positive emotions into nine broader categories—Enjoyment, Gratification, Empathy, Affection, Interest, Aspiration, Optimism, Assurance, and Animation—based on similarities between the emotions. This categorization was developed using a multidimensional scaling (MDS) analysis, which visualized the similarity between emotion types by representing them in a two-dimensional space, where the closer the emotions were to one another, the more similar they were. For example, Surprise and Energized were positioned close together, whereas Pride was further away, indicating less similarity.

In our analysis, our team adapted this two-dimensional visualization of similarity between the 25 positive emotions from Desmet's study and incorporated our own results. In the visualization below, we added colored circles in front of each emotion, where the size of the circle corresponds to the number of cases reported for that emotion graphically. Additionally, we grouped the emotions by category and totaled the number of cases within each category. Based on the total number of cases for each category, we then ranked them accordingly in the following table, providing a clearer representation of similar emotional responses from participants. According to this classification the similar picked emotions can further be analyzed and ranked based on the broader categories:

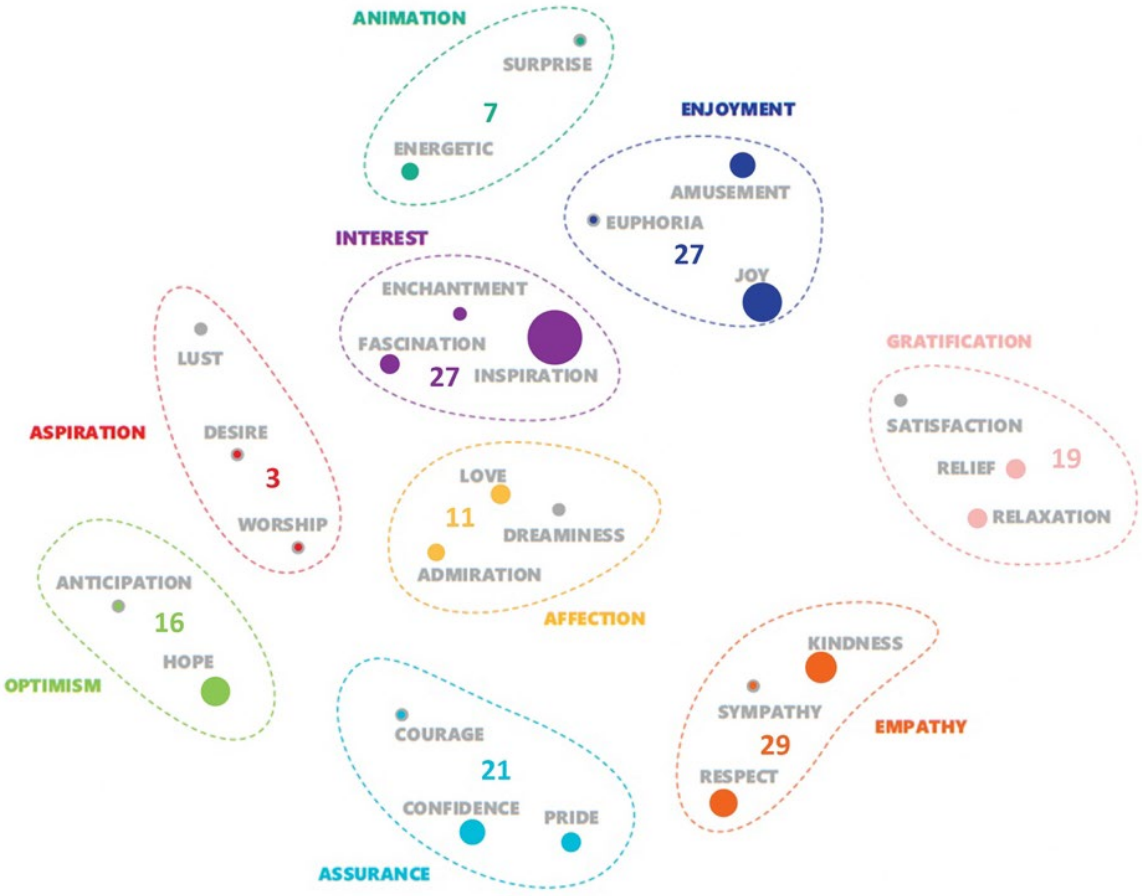

Figure 20: Two-dimensional visualization of similarity between the 25 positive emotions: Multidimensional scaling analysis of emotion types adapted from Desmet, 2012.

Broader emotion categories	Number of cases in each category	Description/ analysis
Empathy	29	This category, which includes emotions such as **kindness**, **sympathy**, and **respect**, had the highest number of reported cases. This suggests that *Power To Be* creates strong feelings of care, connection, and altruism among participants, making empathy a key emotional response to the environment.
Interest	27	Emotions such as **inspiration** and **fascination** fell within this category, indicating that the site evokes curiosity and creative engagement. The large number of cases suggests that participants found the environment mentally stimulating and motivating.
Enjoyment	27	This category, which includes **joy**, **amusement**, and **euphoria**, highlights that participants experienced significant levels of happiness and lightheartedness. It suggests that the environment at *Power To Be* provides a space for both fun and emotional upliftment.
Assurance	21	Emotions related to **confidence**, **pride**, and **courage** are grouped here, reflecting that participants felt self-assured and empowered during their time at the site. This might be linked to feelings of accomplishment through activities or interactions at the site.
Gratification	19	Emotions such as **satisfaction**, **relief**, and **relaxation** fall under this category. The number of cases here points to the site's role in helping participants feel content, at ease, and relieved of stress, suggesting the space provides emotional comfort.
Optimism	16	The **anticipation** and **hope** emotions in this category indicate that participants felt optimistic about future experiences or outcomes, perhaps tied to the positive energy and potential the environment represents.
Affection	11	**Love**, **admiration**, and **dreaminess** were emotions that captured participants' deeper emotional connections, either with the space itself or with the broader community. This lower frequency suggests that while the site evokes affection, it’s not as dominant as other emotional responses like empathy or interest.
Animation	7	This category, represented by **surprise** and **energetic**, reflects more active or high-energy emotions. Fewer cases in this category suggest that while some participants felt energized, the overall environment may be perceived as more calming or reflective.
Aspiration	3	Emotions such as **desire**, **lust**, and **worship** are included in this category. The low number of cases suggests that

		aspirational feelings were less common in the participants' responses which was predictable due to this group of feelings being less relevant to the main goals and mission of the organization and project.

The Positive Emotions Card Deck, originally designed to help understand the nuances of positive emotions, determine the emotional intention of a product, or facilitate creativity in design conceptualization, was adapted in this study for evaluating landscape design features after project completion. By repurposing this tool, the study aimed to shed light on emerging trends in how people emotionally interact with outdoor environments and to demonstrate the versatility of existing tools in assessing project success. This approach highlights how tools designed for a similar purpose can be effectively applied in new contexts, such as landscape design, to provide insights into user experiences and measure the emotional impact of completed projects. It offers a broader perspective on how such tools can be adapted beyond their original intention to evaluate the success and emotional resonance of environmental designs.

Source:
https://diopd.org/embodied-typology-of-positive-emotions/

Yoon, J., Pohlmeyer, A.E., & Desmet, P.M.A. (2015). Positive Emotional Granularity Cards. Delft, Delft University of Technology. ISBN: 978-94-6186-440-6

Desmet, P. M. A. (2012). Faces of Product Pleasure: 25 Positive Emotions in Human-Product Interactions. *International Journal of Design*, *6*(2), 1–29.

Primary data gathered through interviews, focus group and engagement session by research team.

Limitations:

- Participants' emotional responses are inherently subjective, and their interpretations of emotions may vary, making it difficult to ensure consistency across individuals.
- Although the Positive Emotions Card Deck includes 25 emotions, some participants might have experienced emotions not covered by the deck, potentially restricting their ability to fully express their feelings.
- Asking participants to choose the top five emotions may lead them to focus only on prominent feelings, potentially overlooking subtler emotional responses.
- Emotional responses may be influenced by external factors unrelated to the site, such as mood or personal circumstances, which could affect the reliability of the results.

- While participants were asked to select five emotions, not asking them to rank these emotions may result in a loss of information regarding the intensity or priority of different emotions experienced.

- In focus groups and engagement sessions, participants may be influenced by the emotions expressed by others.

- Some emotion cards used in this study were less relevant but were still used to stay consistent with the method.

Promotes learning opportunities, with interviewed staff and participants reporting gaining valuable insights about wildlife, bird species, and plant species on-site. They also described learning life lessons from constant connection to nature, gaining awareness of native and non-native species, understanding natural cycles in the environment, and discovering fun facts about nature.

Method:

The interviewees and focus group participants were asked questions to examine informal educational outcomes at the site. Staff members and volunteers were asked about the general ecological and environmental knowledge they had acquired informally through their regular interactions with the site. This line of questioning aimed to capture the incidental learning experiences of individuals who are frequently present on the site and thus have opportunities for ongoing, experiential engagement with its natural elements. The focus group participants that were alumni from the landscaping and restoration program were specifically asked about the knowledge and skills they gained through their involvement in this structured program, allowing for insights into the more targeted, program-based learning experiences. The responses from both interviews and the focus group were then organized into key themes, with the frequency of responses noted in the table below.

Calculations:

Informal educational outcomes	**Description**	**Frequency**
Animals, wildlife, and plant species	Informal conversations and time spent on-site allow participants to learn about local species, such as identifying plants and observing wildlife behavior in a natural setting.	5
Landscaping skills	The landscaping and restoration alumni indicated that they have gained skills in mowing, maintenance and weeding.	4

Stewardship practices	Participants learn hands-on stewardship techniques, including weeding, removing invasive species, and general site maintenance, which fosters a sense of responsibility for the land.	4
Native and invasive species	Knowledge of local ecosystems is deepened by identifying native plants and understanding the impact of invasive species, such as recognizing species like stinging nettle and salal and their ecological roles.	3
Environmental initiatives through staff and community partners	Exposure to environmental projects and discussions with staff and partners allows participants to gain insight into ongoing conservation and sustainability efforts.	3
Sharing knowledge in an accessible and inclusive way	Staff and community members share ecological information in an approachable manner, ensuring that environmental knowledge is accessible and inclusive for everyone.	2
Ecosystems and humans role in the ecosystem	Participants gain an understanding of how humans interact with and impact ecosystems, contributing to a broader awareness of environmental stewardship.	1
Symbiotic relationships between species	Knowledge of symbiotic relationships, such as between stinging nettle and salal, helps participants appreciate interdependencies in nature and learn practical ways to use plants in the environment.	1

-Relevant quotes-

“I drive my husband nuts when we go out, and I have all these like, nature nuggets and facts that I just love. it has just helped me to engage in other spaces that aren't just here at our site, and really be able to see those patterns and recognize those features in other places”

"I've learned a lot about symbiotic relationships at Power To Be. The staff here teach you beautiful things. For example, stinging nettle often grows near salal, and if you get stung by the nettle, salal can actually help soothe it."

"Another example is the arbutus trees. They looked infected with fungus, and we were worried. But we learned that sometimes the nutrients need to go into the roots instead of the leaves. Three years later, they look amazing."

"A couple of weeks ago, I was out there, and all the leaves were out, but they were starting to shift toward fall. It’s been really neat to build relationships with different parts of the land and to watch how they change with the seasons. Having a dedicated site allows us to observe these cycles, unlike when we’d visit places like Sooke or Elk and Beaver lake randomly, missing different seasons. Here, we get to see the whole cycle, which has actually helped us in our planning."

The analysis of informal educational outcomes highlights that the site provides a rich environment for experiential learning, with key themes emerging around local ecology, stewardship, and practical

environmental skills. The most frequently mentioned outcome was the increased knowledge of local wildlife, plants, and animal behavior, often learned through casual, on-site interactions. Alumni from the landscaping and restoration program reported gaining specific skills in site maintenance, such as mowing and weeding, while general stewardship practices, including invasive species management, were also commonly mentioned. Practical examples were provided to illustrate ecological relationships, such as the healing properties of salal following exposure to stinging nettle. In conclusion, these findings suggest that the site successfully promotes environmental awareness and practical skills through both structured and incidental learning opportunities, supporting a well-rounded understanding of local ecosystems and stewardship practices.

Source:

Primary data from interviews and focus group.

Limitations:

- The number of interview and focus group participants may not be large enough to generalize findings to the entire community of users, limiting the scope and reliability of the results.

- Responses rely on self-reporting, which can introduce bias. Participants may unintentionally omit certain experiences or provide responses that align with perceived expectations.

- Difficulty reaching participants in. other programs limited the responses from staff members and a small focus group from the landscaping and restoration program which does not represent other educational outcomes through other programs offered on site.

- In focus groups, certain voices may dominate, influencing others' responses and potentially skewing the results towards shared perspectives rather than capturing a diverse range of opinions.

- Not all participants may have had the same exposure to different areas or educational activities on-site, leading to variability in learning experiences and responses.

- The informal nature of the educational outcomes discussed does not necessarily capture the depth or retention of learning, which may vary widely among participants.

- Participants may forget or selectively remember experiences, which could lead to an incomplete picture of the educational outcomes experienced on-site.

Provides access to diverse natural areas on-site, with 80% of interviewed staff and participants emphasizing that the space was notably more accessible than other working environments or outdoor organizations they had encountered. Participants reported being able to connect with and explore the immediate surroundings of the buildings independently and to explore the campgrounds, lake, forests, and creeks with assistance of staff members and equipment.

Creates an inclusive environment where 100% of interviewed staff and participants reported feeling heard, cared for, and valued. They reported that the open entrance, totem poles, and central gathering circles adopt a welcoming atmosphere that grounds individuals and that events like "Have a Go Day" and "All Teams Day" further strengthen community bonds and reinforce the inclusive spirit central to Power To Be's values.

Creates a friendly, supportive, and goal-oriented culture for staff and volunteers, which was frequently cited by interviewed staff as essential to their sense of belonging.

Background:

With accessibility and inclusion being two central goals of Power To Be as an organization, exploring these concepts in detail through a qualitative lens was a crucial component of our research approach. We examined both terms in two dimensions: external and internal.

For accessibility, the external dimension refers to the physical accessibility of the site—how staff members, volunteers, and participants navigate the space. This includes the design of pathways, entrances, and overall site infrastructure, ensuring that everyone can physically access and move through the environment with ease. The internal aspect of accessibility focuses on how participants engage with and experience the outdoor areas and nature on-site. This includes not only the ability to access the space physically but also the ease with which individuals can fully participate in and benefit from the experiences provided by natural features.

Similarly, the concept of inclusion was explored in both external and internal contexts. The external dimension of inclusion considers how site design and organizational practices foster an inclusive environment, where diverse individuals feel welcomed and represented. The internal aspect refers to how these external factors contribute to a personal experience of inclusion, such as a sense of

belonging and feeling at home within the Power To Be community and environment. This internal experience of inclusion can manifest as a deeper emotional response, where individuals feel they belong and are valued within the community. This distinction between external and internal factors allows for a more comprehensive understanding of accessibility and inclusion.

Method:

To explore the concepts of physical access, experience, inclusion, and sense of belonging, we conducted semi-structured interviews and focus group discussions with participants and staff members at Power To Be. These concepts were central to the research, with each open-ended question aimed at capturing a deeper understanding of how individuals engage with each of these categories. Each theme was explored through a main question (included in appendix) and each open-ended question was followed by a series of probing questions to further explore participants' thoughts and feelings. For example, after asking about their physical access experiences, follow-up questions examined specific challenges they faced or adaptations that helped facilitate access.

Data Analysis

The recorded responses from interviews and focus groups were transcribed for analysis. Using NVivo, a qualitative data analysis software, the transcripts were thematically coded. This approach enabled us to systematically categorize responses and identify recurring themes. The coding process involved several steps:

1. **Initial Coding:** Transcriptions were read multiple times to familiarize the research team with the content. Open coding was then applied to segment the text into initial categories based on recurring ideas and experiences shared by participants.
2. **Thematic Analysis:** Once the initial codes were identified, the data was grouped into broader themes. The analysis revealed four main categories:

Contributing Factors: Elements that enhance accessibility, experience, inclusion and sense of belonging on-site.
Adaptations and Improvements: Changes that have been made to improve the each of these on-site.
Barriers: Challenges or obstacles that participants encountered in each category.
Suggestions for Future Improvements: Recommendations made by participants and staff to further enhance each category explored.

Calculations:

Participants were asked to think of Power To Be in terms of accessibility, experience, inclusion and sense of belonging in comparison to other similar organizations that they had experienced, or before Power To Be moved to this site. The tables below capture the responses in thematic categories and relevant quotes in each section is included for further reference.

Accessibility:

Category	Theme	Sub-theme	Description	Frequency
Contributing Factors	**Accessibility of Physical Spaces**	Accessible Campground and Tent Pads	Designated campground and tent pads allow for overnight stays, ensuring accessibility for camping activities.	3
		Accessible Pathways and Trail Grading	Concrete pathways surrounding the immediate buildings create smooth transitions around the main spots.	3
		Wheelchair Ramps	Ramps at strategic points enable accessible entry and movement throughout the site.	2
		Accessible Dock and Front Forty	Accessible pathways up to the dock areas offer access to the lake and surrounding nature.	2
		Independent Movement Throughout the Site	Paths and trails in the front forty are mostly accessible for participants to move independently across the site areas	1
	Accessible Facilities and Infrastructure	Door Handles, Frames, and Automated Buttons	Wide door frames and automated door buttons throughout the infrastructures enhance accessibility for wheelchair users and others.	4
		Accessible Bathrooms	Large, accessible bathrooms with spacious stalls and automated doors contribute to ease of use for participants with mobility needs.	3
		Accessible Kitchen	A kitchen designed for wheelchair access allows participants to cook and engage in activities independently.	1
	Adaptable and flexible design features and elements	Spacious and Open Site Layout	The open and spacious layout of the site allows for easy navigation and reduces obstacles, especially for large groups.	3
		Dedicated Sensory Experiences	Panting choice, and design elements support sensory experiences integrated at arrival (textures, sounds) to engage various senses.	2
		Adaptable Outdoor Furniture	Furniture that can be easily adjusted or relocated, allowing for flexibility based on user needs and comfort.	2
	Culturally-accessible	Immediate Rain Gardens Surrounding the	Provides an accessible area for interaction with native plants and serves as a resource for cultural and educational activities and	1

	Spaces	Building	programs.	
		Knowledge Keeper Programs in Accessible Gardens	Culturally informative garden spaces where participants learn about native species with guidance from a knowledge keeper.	1
Adaptations	**Improved Site Infrastructure**	Added Signage	New signage was installed to make navigation clearer, helping users find their way across the site.	3
		Trail Work	Trails were upgraded for better accessibility, with smoother surfaces and clearer paths.	2
		Surface Type and Grade Adjustments	Adjustments to surface types and grading were made to facilitate easier movement across various site areas.	4
	Flexibility to evolve	Continuous feedback from participants	The participants were engaged in the design process and continuous 30-60-90 day reflections help the site team understand and address new accessibility needs.	4
		Supportive tools	The forest area (back forty) was made accessible with assistive devices like trail riders for participants needing support.	3
Barriers	**Landscape limitations**	Accessibility of paths and trails	Certain trails, especially those with gravel and the back forty forest area remain challenging for wheelchair users and those with limited mobility due to uneven surfaces and steep grades.	7
		Altered terrain	Weather events such as windstorms and rain alter terrain, affecting accessibility on unpaved surfaces.	1
		Sun Exposure	Limited shade along certain pathways and in outdoor areas poses challenges during sunny days. Planting of immature trees also contributes to limited shade.	2
		Lack of Electricity in Campsite	There is no electricity at some campgrounds, preventing charging of mobility devices, such as scooters.	1
	Noise and Sensory Issues	Echoing noise and limited soundproofing	The echoing in the gear hub is challenging for participants with hearing impairments and some indoor spaces lack sufficient soundproofing, posing a barrier for participants sensitive to noise.	5
		Construction Noise	Ongoing construction noise has affected the experience for participants, particularly those sensitive to noise.	2
		Invasive Species Management	Invasive plants like Hemlock and Thistle overtake some areas within the rain	2

	Maintenance challenges		gardens, attract deer and create a need for regular removal and maintenance.	
		Overgrown Vegetation	Certain plants grow too long or scraggly, obstructing paths and requiring frequent maintenance.	1
Suggestions	**Enhance trail work**	Improve path surfacing and material	Replace wooden boardwalks with paved ones to improve wheelchair and scooter accessibility and maintain consistent grades and surfacing to reduce challenges for different wheelchair types on trails.	4
	Sound improvements	Soundproofing for Indoor Spaces	Install additional soundproofing or a hearing loop system to support participants with hearing impairments.	3
	Site enhancements	Homey Touches in Programming Areas	Increase seating areas like bean bag chairs, sensory bins, and personal seating to enhance comfort and provide resting spots.	3
		Environmental Scans	Conduct regular checks after weather events to ensure terrain remains accessible and clear of debris.	1
		Natural Exploration Loop	Develop a well-defined loop trail in the amphitheater area for greater independence in exploring natural spaces.	1
		Enhanced Wayfinding	Improve wayfinding and signage across the site to support easy navigation for both new and returning visitors.	1

-Relevant Quotes-

"For the most part, it has really allowed just a lot more independence for our participants to be able to get out into the natural spaces, whereas before, they would have relied on us or our equipment to make that happen. And I see that that continuing to just become more and more around here."

"It was beautiful to learn from [Landscape Architect of the project] about the reasoning for the aspen trees and how the sound could be really great for someone with a limited vision to when people come nearby and there's different textures and different smells and so really enhancing that sensory experience."

"We always intended on building in stages. So I think that that's very valuable because we can check in with our participants and see how they're feeling…"

"It was really important to not make all these assumptions about what we would need to do right away. Similar to the buildings and the outside landscape, we did what's called like a 30, 60, 90-day reflection. So after 30 days, 60 days, 90 days, then a year. Now we're almost into two years, it's really important to pause and reflect."

“To have participants feel at ease that they don't have to worry about their regular life of no's, you can't go there, you won't be able to take your chair there or access this place, and when people arrive here, they don't feel that. So that's a pretty important thing, and I wear that with pride.”

Analysis

The responses reflect that accessibility at the site is supported by both initial design choices and iterative adaptations. Most interviewees noted that the site’s accessibility is significantly better than other outdoor facilities they had experienced, enabling increased independence for participants. Key contributing factors include accessible infrastructure—such as wide doorways, automated bathrooms, and native rain gardens—as well as ramps, concrete pathways, and graded trails that support mobility and provide greater freedom of movement. Additionally, sensory enhancements such as the aspen trees contribute to the site’s inclusivity by supporting sensory needs, fostering connection to nature, and creating a more engaging experience for all users. The ongoing adaptations demonstrate the organization’s commitment to accessibility as a dynamic process. Staged reflections, including 30, 60, and 90-day feedback cycles, have allowed the team to assess and improve based on participant feedback, ensuring that the site remains responsive to user needs. Sun shelters, expanded seating options, and newly added wayfinding signage are further examples of these adaptations that enhance participant comfort and ease of navigation.

Conclusion

Overall, the site demonstrates a strong foundation of accessibility, especially in the immediate building area, which was thoughtfully designed with adaptable pathways and inclusive features. The adaptive management approach, which incorporates regular feedback and reflection, allows for incremental improvements that address evolving participant needs. However, challenges remain in less accessible areas, such as the pavilion and back trails, and in managing environmental factors like noise and seasonal terrain changes. Future efforts to implement suggested improvements—such as expanded accessible pathways, enhanced soundproofing, and more resilient infrastructure—would further strengthen accessibility across the site. In conclusion, the site’s current accessibility framework, combined with its commitment to continuous adaptation and participant-centered improvements, has the potential to set a new standard for inclusive outdoor environments.

Experience:

Category	Theme	Frequency
Contributing factors	Ideal location; close enough to town but remote enough to be away from city hustle	5
	Easy access to nature (e.g., nature walks, Wednesday lagoon dips, hiking in the forest, sitting on by the lake)	7
	A good balance between natural and organic against man-made elements	3
	Quiet, peaceful environment	2

	A spectrum of connection levels to nature	2
	Welcoming entrance and inviting space by the totem poles	2
	Social gatherings around the roundhouse and fire	2
	Range of activities from group to individual settings	1
	Feeling safe to experience remote areas such as hiking in the forest	1
Adaptations	Incorporating a permaculture mindset towards site experience; adapting over time	1
	Including participant input in new developments such as the newly build garden and greenhouse	2
	Honoring Indigenous community input (e.g., garden plant selection and knowledge)	2
Barriers	Construction, road and plane noises that might disrupt engagement and site experience	2
Suggestions	The addition of more color to the environmental pallette other than green and white and adding more seasonal flowers	2
	Adding informative signage around plant species and more information regarding low and high maintenance needs of plants	1
	Adding aromatic plants along the paths for individuals with sight impairment to engage further with the environment	1

-Relevant quotes-

"When challenges arise, we address them collaboratively, figuring out what needs to change. It has that permaculture mindset—ever-evolving, adapting as things come up."

"Nature surrounds you here, providing a foundation for people to build a relationship with the land, deepen their ecological identity, and see where they fit within the ecosystem."

"One unique aspect of camping here at night is the wildlife activity. We have a bat box, and you can hear owls and frogs. After people leave for the day, the deer come out, and there have even been cougar and bear sightings. It's not fully remote, but it's rural enough to encounter larger animals."

In response to questions about the engagement and experiential qualities of the site, interviewees were asked not only about physical access but also about their ability to fully engage with and experience the environment. Follow-up questions delved into specific features or enhancements that support a deeper interaction with nature and the overall site. The responses indicate that participants value the immersive quality of the site, with contributing factors such as the convenient yet secluded location, easy access to natural settings, and a peaceful, quiet environment. These elements collectively provide a unique balance of natural and man-made features, which interviewees feel supports various levels of connection to nature, from structured group activities to individual, contemplative experiences.

Adaptations over time, such as incorporating a permaculture mindset and participant feedback, have further enhanced this engagement. Additionally, honoring Indigenous knowledge in the design has enriched the experience, making it more meaningful to a broader community. Despite these strengths, barriers such as external noise from construction and road traffic detract from the site's immersive potential. Suggestions for improvement focus on enhancing sensory engagement through increased color, signage, and aromatic plants to support a wider range of participants and enhance their site experience.

Overall, based on responses from interviewees the site successfully promotes a layered experience of nature that resonates with diverse participants. While mostly accessible and engaging, addressing minor barriers and implementing participant-driven suggestions could enhance the site's inclusive and sensory-rich experience.

Inclusion:

Category	Theme	Frequency
Contributing factor	Totem poles and opening circle create space for sharing, introduction and grounds individuals in an inclusive energy	5
	Large open entrance creates an inviting atmosphere that holds individuals	5
	Power To Be values and the land and space promote inclusion cohesively and hand in hand	4
	Outdoor inclusive events such as "have a go day" promote community spirit and inclusion	3
	Challenge by choice culture creates a sense of comfort and ease for participants to challenge themselves or have fun	3
	Sites capacity to support group events and activities	2
	Other circular gathering spaces such as the roundhouse create spaces for everyone's voice to be heard	2
	New ideas, feedbacks and suggestions are welcomed and encouraged	1
	Reconciliatory approaches and values, including indigenous partnerships and having indigenous art on site promotes sense of inclusivity	1
Suggestions	Placing emphasis on specific areas such as the amphitheater, play space, and Roundhouse as meaningful stops along the way with added signage and info booths can help individuals feel more included	2

-Relevant quotes-

"We go into the area where we have the totem poles and do like an opening circle together, and I think that contributes to inclusion, because everybody has a chance to speak, and also we're all kind of facing each other. There's just like an energy about it that feels very inclusive, like we're all here together, and there's no leader, because we're all in a circle."

“I think in the landscape, everything works cohesively; the physical environment is very inclusive, and the staff who work here are also very inclusive. So they kind of like play off of each other.”

“The way that the site has been designed and continued to grow has really been with inclusion in mind, more than just access. And just because you can get into a space doesn't mean that you feel welcome there. But I do think that we as a staff team, and just the way that we relate to a lot of the folks that we work with, as well as the environment itself, is a very inclusive place.”

“I think the piece that's really beautiful is that once people cross the threshold between the two buildings, it feels like a bit of containment. So it feels like you're being held a little bit by the site. And it feels like, okay, I can be here, I can leave the stuff that I left in the parking lot behind, and I can be here..”
“We crossed in and now we know what it means to be here…”

The responses reflect a broad consensus that inclusivity at the site is deeply embedded in both its design and the values of the organization. Physical features, such as the totem poles, the large open entrance, and circular gathering spaces like the roundhouse, contribute to a welcoming and inclusive atmosphere. These spaces support social interaction, grounding participants in a sense of community and belonging. Additionally, inclusive outdoor events like "Have a Go Day" encourage a collective spirit and allow participants to engage on their own terms, emphasizing a "challenge by choice" approach that enables comfort and personal growth. The organizational culture also plays a significant role, with a commitment to integrating participant feedback and honoring Indigenous partnerships. By adopting reconciliatory values and featuring Indigenous art on-site, the organization creates a sense of shared purpose and respect for diverse backgrounds. This emphasis on inclusivity is further reinforced by a welcoming environment where new ideas are openly encouraged, and adaptations are made in response to participant needs.

The majority of responses reflect that the site’s design and organizational practices effectively promote an inclusive environment that supports both individual and group engagement. Continuous attention to inclusivity—through both physical spaces and community-focused events—demonstrates the organization’s commitment to creating an environment that respects and celebrates all individuals.

Sense of belonging:

Contributing factors	**Frequency**
Friendly, social and goal-oriented culture among staff and volunteer members who are seen as central to the community is closely linked to sense of belonging among participants.	7
Community at Power To Be creates a space where individuals feel supported and cared for, creating confidence and sense of ease	6

Community workshops and group event such as “all teams day”	4
Sharing, connection and creating memories through group activities and one on one interactions	4
Sense of strong stewardship and ownership of the land creates familiarity and deeper roots	4
Human-mentality oriented mindset	3
Having a home base has allowed participants to feel relaxed and unpressured, within a judgment-free atmosphere where they feel accepted regardless of appearance or behavior	3
Humor and laughing together	2
Nature as a co-facilitator in running programs	2
Engaging participants in the design process promotes their sense of belonging	2
Previously, the organization operated in a mobile format, which lacked a deeper sense of connection, and having a home base was driven by participants’ need to feel more rooted, and connected to place	1

-Relevant quotes-

“We approach things with sort of, like a human-first kind of mentality, like we're people before we're staff…”

“People are told no constantly when they're occupying those disability or barrier spaces, and for us to start with, what is a yes is really a refreshing thing for a lot of the individuals. I do a lot of intake work with new participants, and I find that sometimes I have to repeat myself three or four times before someone realizes that I'm not saying no, because they're just so used to hearing that, and they come in ready to fight and advocate for themselves.”

“We always lean pretty heavily on nature as our CO facilitator in a lot of our programs. Having a space like this that people are coming back to again and again and building those connections and relationships with the land is just aa very powerful piece.”

"I often feel like, 'Oh, I get to go to work today,' whereas in other places, it's more like, 'I have to go to work.' Here, it's different—I'm excited to go, to see my little eagle friend building her nest, and to work with colleagues who are just as excited to explore the new play space. It really feels like I belong here."

“This is the only organization I've ever worked for with youth where they don't ask you to park blocks away from the school when you pick them up, they're fine if someone pulls up in a branded van, because they're proud of being part of this organization. And to see them, to see their connection to the land, and to feel like their needs are being heard in the way that it was designed, in the way that it was set up because we listened to them. That doesn't happen very often…”

"They’re feeling a sense of trust and connection to the place, even telling others where to go or what to do. That was one of those ‘aha’ moments—this is why we wanted to create this space. Out in the community, there was always extra pressure. Here, they don’t worry about making sounds, wearing certain things, or being judged. Creating a place with no judgment has significantly increased participants' comfort, showing a real shift in behavior compared to being out in the community."

The data indicates that the sense of belonging among participants at Power To Be is primarily driven by a friendly and supportive culture, where staff and volunteers play a central role in creating community bonds. The organization’s focus on creating a welcoming, judgment-free space has allowed participants to feel valued and accepted, building confidence and comfort. Key elements contributing to this sense of belonging include social activities like "all teams day" and shared, memorable experiences through group interactions. Additionally, a strong stewardship ethos and a "home base" create familiarity, grounding participants in the land and promoting a sense of ownership and connection. The organization’s evolution from a mobile format to a stable home base was also crucial in establishing a sense of rootedness and trust, allowing participants to connect more deeply to both the place and the community. Incorporating nature as a co-facilitator and engaging participants in the design process further strengthens sense of belonging, ensuring participants feel integrated within the environment.

Power To Be’s emphasis on a supportive, inclusive culture and its dedicated home base significantly enhance participants' sense of belonging. Through continuous engagement and shared values, the organization provides a solid foundation for participants to feel rooted and connected.

Source:

Primary data gathered through interviews and focus group by research team.

Limitations:

- While thematic coding is systematic, the interpretation of themes may still be influenced by the researchers' perspectives, potentially leading to bias in how data are categorized.

- The analysis relies solely on interviews and focus groups, which may not capture the full range of participant experiences, especially from those who may not have participated in the discussions.

- If the number of interviewees and focus group participants is relatively small, the findings may not fully represent the broader population of users at Power To Be.

- The data are based on participants' subjective accounts of their experiences, which may be influenced by memory recall, personal perceptions, or social desirability bias.

- Due to the specific focus on Power To Be’s site and users, the findings may not be generalizable to other settings or similar programs without contextual modifications.

Economic Benefits

Creates employment opportunities through Power To Be's Landscaping and Restoration Employment Program, supporting 17 participants in developing stewardship skills, social skills, land-based learning, and landscaping skills, with at least 9 participants or 83% of cohort alumni having secured internal or external employment.

Background:

The Landscaping and Restoration Employment Program was developed by Power To Be in response to a significant challenge faced within the community: many individuals with disabilities lose government funding and support at the age of 18, despite not being fully prepared for independent living. To address this gap, Power To Be, in collaboration with CanAssist, created a three-month program designed to equip participants with both landscaping and restoration skills as well as basic pre-employment training.

The program focuses on helping young adults transition to meaningful work by teaching them practical skills for entry-level employment. Participants also gain a sense of ownership over the Prospect Lake site, using it as a learning environment for hands-on activities. In alignment with the 12 Permaculture Principles, the program teaches participants how to care for and restore natural environments, emphasizing the interconnectedness of ecological systems.

Program Goals:

- Technical Landscaping and Restoration Skills: Participants gain hands-on experience in tasks such as planting, tool usage, and plant identification, particularly within the context of the rain gardens and native plant garden on site.
- Interpersonal Skills and Social Development: The program emphasizes community building and the development of teamwork and communication skills, supported by collaboration with peers and mentors.
- Employment Readiness: Participants are prepared for future employment opportunities through the practical application of landscaping and restoration techniques in real-world environments.
- Self-Advocacy and Confidence: By connecting with nature and building competency in ecological restoration, participants grow in self-confidence and learn to advocate for themselves within both personal and professional contexts.

Method:

The data for this report was gathered from publicly available sources, specifically Power To Be's annual impact and financial reports. These reports provide key quantitative data on the organization's

programs, including the Landscaping and Restoration Employment Program. Relevant metrics such as the number of participants, employment outcomes, program duration, and the overall scope of activities were extracted and analyzed to assess the program's impact. This approach allowed for the evaluation of the program's reach and effectiveness, based on the documented outcomes presented in the reports.

Calculations:

In the first year of operation, nine adults completed the program, with eight securing employment. This initiative has demonstrated success in reducing the long-term costs of unemployment and social support, while providing participants with opportunities for education, skill-building, and personal development.

According to interviews with the lead staff members of the program, the Prospect Lake site has played a crucial role in shaping the program's success. Staff emphasized that the site's rich natural environment, particularly the rain gardens, native plant garden, and overall connection to the land, significantly enhance the educational experience for participants. These elements allow for real-time, hands-on learning opportunities that go beyond theoretical instruction, providing participants with practical ecological restoration skills directly applicable in employment contexts. However, not all activities can be supported on-site and some skill learning activities are supported off-site.

Furthermore, staff highlighted the importance of the site's immersive connection to nature in fostering a sense of ecological stewardship. Being embedded within the natural environment allows participants to cultivate a personal connection to the land, deepening their understanding of ecological systems.

Sources:

Primary data through Interviews with staff members and program leads.

Power To Be Annual Impact and Financial Reports for 2023.

https://issuu.com/powertobe/docs/2023_impact_report_final?fr=xKAE9_zU1NQ

https://powertobe.ca/annual-reports-financials/

Limitations:

- The data are derived solely from publicly available reports, which may not capture the full scope of participant experiences or unintended outcomes.
- While employment outcomes are reported, there is no information on the nature or quality of the jobs secured, or whether these positions provide long-term sustainability for participants.
- The report covers only immediate or short-term outcomes, without examining the long-term success or retention rates of participants in employment.

Increased volunteer engagement, with a 36% increase in volunteers and a 14% increase in volunteer hours from 2021 to 2023, offsetting labor costs and reinforcing community-driven contributions to site operations.

Method:

To assess the growth in volunteer support following the opening of the Prospect Lake site, we conducted a comparative analysis of the 2021, 2022, and 2023 annual impact reports from Power To Be. These reports provided quantitative data on the number of volunteers and total hours of volunteer support for each year.

The 2021 report was used as a baseline to represent volunteer engagement prior to the opening of the Prospect Lake site in mid-2022. The 2022 and 2023 reports were then analyzed to track changes in volunteer participation and hours of service after the site became operational.

By comparing these metrics across the three years, we were able to identify the gradual upward trend in both the number of volunteers and the total hours of service, illustrating the positive impact of the Prospect Lake site on volunteer engagement.

Calculations:

Calculation of Percentage Increase in Volunteer Hours (2021 to 2023)

We calculated the percentage increase in volunteer hours from 2021 (before the Prospect Lake site opened) to 2023 (the most recent year the site was operational with supporting data). The formula used is:

Percentage Increase=New Value−Old Value/Old Value×100

Using the volunteer hours data:

- Old Value (2021): 2,815 hours
- New Value (2023): 3,215 hours

Percentage Increase=3,215−2,815/2,815×100=400/2,815×100≈14.2%

Thus, the volunteer hours increased by approximately 14% from 2021 to 2023.

2. Growth in Number of Volunteers (2021 to 2023)

We tracked the increase in the number of volunteers each year:

- 2021: 75 volunteers
- 2022: 87 volunteers

- 2023: 102 volunteers

Using the formula for percentage increase:

Percentage Increase=New Value−Old ValueOld Value×100Percentage Increase=Old ValueNew Value−Old Value×100

Where:

- Old Value (2021): 75 volunteers
- New Value (2023): 102 volunteers

Percentage Increase=102−75/75×100=27/75×100≈36%

So, the overall increase in volunteers from 2021 to 2023 is approximately 36%.

Sources:

Power To Be Annual Impact and Financial Reports for 2021, 2022 and 2023.

https://issuu.com/powertobe/docs/2023_impact_report_final?fr=xKAE9_zU1NQ

https://powertobe.ca/annual-reports-financials/

Limitations:

- The calculation does not account for any fluctuations or changes in volunteer numbers throughout the year. It only compares end-of-year values, potentially overlooking seasonal or short-term changes.
- The approach focuses solely on quantitative data (number of volunteers and hours), without considering the quality of volunteer engagement or the effectiveness of their contributions.
- The analysis is limited to three specific years (2021, 2022, and 2023) and may not reflect longer-term trends in volunteer engagement prior to 2021 or after 2023.
- The method does not take into account external factors (e.g., the COVID-19 pandemic, economic conditions) that may have influenced the number of volunteers in these years.
- Other factors (such as changes in recruitment efforts or programming) may have contributed to this growth.
- Other important metrics, such as retention rates, volunteer satisfaction, or the long-term impact of contributions have not been accounted for.

Catalyzed partnerships with 3 key site partners, collaboration with 64 service partners, and engagement with 33 community groups. These relationships enhance resource-sharing, reduce operational costs, and generate economic value through expanded services and community-driven support.

Background:

Power To Be engages in multiple partnerships to enhance the scope and impact of its programs. These partnerships involve collaborations and facilitate access to a wide range of resources and expertise aimed at supporting outdoor education and conservation activities.

The establishment of the Prospect Lake site has significantly enhanced Power To Be's ability to expand and deepen its existing partnerships. For example, the organization's collaboration with Human Nature Counselling has grown from running a single program to delivering approximately four programs together, facilitated by increased access to the site's resources. This access has provided Human Nature Counselling with greater capacity for their work, highlighting the mutually beneficial nature of these partnerships.

These integrated partnerships allow Power To Be not only to scale its impact but also to contribute back to its partner organizations. Prior to the establishment of the site, Power To Be operated as a nomadic organization, heavily reliant on the facilities and support of other organizations to conduct its programs. The acquisition of the Prospect Lake site has transitioned Power To Be from a position of dependency to one of abundance, where it can now offer its own site as a resource for others. This shift reflects the organization's broader mission to foster collaboration, ensuring that other initiatives aimed at providing access to nature also thrive.

Power To Be's diverse network of partnerships spans a wide range of sectors and communities, from indigenous tribal schools to leading healthcare institutions like BC Children's Hospital. These partnerships are crucial in fulfilling the organization's mission to create equitable access to outdoor experiences. By offering its site and resources, Power To Be strengthens these relationships and supports initiatives that promote environmental stewardship, health, and well-being.

Method:

The data presented is derived from a combination of publicly available sources, including Power To Be's annual impact and financial reports, and qualitative insights obtained through a semi-structured interview with the co-CEO of Power To Be. The publicly available reports provided quantitative data on programs, participant engagement, and financial impact, while the interview offered a deeper understanding of the organization's partnerships and the specific impact of the Prospect Lake site. This mixed-method approach allowed for a more comprehensive analysis of both the measurable outcomes and the strategic growth enabled by the site.

Calculations:

The establishment of the Prospect Lake site has enabled Power To Be to develop and strengthen key partnerships, expanding both educational and environmental initiatives as a direct result of having a basecamp on the southern tip of Prospect lake. These partnerships involve collaborations with 3 site partners, 64 service partners, and 33 community groups. These partnerships are integral to the site's mission of creating connection to nature through experiential learning, conservation, and citizen science.

Key partners of the organization:

1.EPIC Learning Victoria:
EPIC Learning Victoria, a nonprofit organization, operates a blended online learning program part-time at the Prospect Lake site. This program focuses on building resilience and adopting creativity through nature-based learning, while deepening participants' relationships with the environment. Students engage in activities such as forest exploration, restoration work, and planting, benefiting from the site's natural surroundings. The nature school partnership emerged as a direct result of Power To Be becoming the stewards of this land, allowing for year-round engagement with the site.

2. Swim Drink Fish:
Power To Be has partnered with Swim Drink Fish, a national organization dedicated to freshwater health, to establish a regional Water Monitoring Hub at the Prospect Lake site. This initiative involves local water quality monitoring, aligned with Swim Drink Fish's mission of restoring and protecting water ecosystems. The site's water testing lab enables participants, including children, to engage in citizen science activities, connecting them to the science behind water conservation and environmental stewardship. This collaboration provides valuable data to inform ongoing water conservation efforts, encouraging both education and ecological awareness.

3.Rocky Point Bird Observatory (RPBO):
In collaboration with RPBO, Power To Be has embarked on a five-year migratory bird study at the Prospect Lake site. This partnership focuses on bird conservation, ecological research, and public education. The site's acquisition made this research possible, enabling RPBO to monitor migratory bird populations in Western North America and engage participants in conservation practices that contribute to broader ecological research.

In addition to these key partnerships, Power To Be works with organizations such as the Habitat Acquisition Trust and the Capital Regional District (CRD) to explore further educational opportunities and support stewardship and restoration projects at the site. These partnerships not only enhance the ecological health of the Prospect Lake site but also broaden the educational scope of Power To Be's programs.

Sources:

Primary data through Interview with Jay Cole (CEO of Power To Be)

Power To Be Annual Impact and Financial Reports for 2021, 2022 and 2023.

https://issuu.com/powertobe/docs/2023_impact_report_final?fr=xKAE9_zU1NQ

https://powertobe.ca/annual-reports-financials/

Limitations:

- While the number of partners and community groups is mentioned, the benefit does not quantify the direct outcomes or benefits resulting from these partnerships (e.g., increased program capacity, participant engagement, or ecological improvements).

- It is unclear and hard to specify that all new partnerships were established or expanded solely due to the project, but other factors (such as organizational growth, funding, or broader social/environmental trends) may have contributed to these outcomes.

- The report does not discuss any challenges or limitations encountered in establishing or expanding these partnerships, which could provide a more balanced view of the impact.

Appendix 1: Interview Questions

Interview questions with staff members, volunteers and community members:

1. Experience of Accessibility (Perception)

Main Question:

1. "How would you describe your experience of accessibility at Power To Be? Are you able to easily access different points of the site and the natural features?"

Follow-Up:

- Are there any specific spots or features on the site that you find particularly easy or fun to access? Conversely, are there areas that you think could use some improvement?
- If you had to rate your experience on a scale from 1 to 10, with 1 being very difficult and 10 being very easy, how would you rate the accessibility of the site?

Show different aspects of the natural features of the site and ask them with photos

2. Experience of Inclusivity

Main Question

2. "Do you perceive the spaces at Power To Be as inclusive? Has the landscape of the site changed your perception of this?"

Follow-Up:

- If you had to rate the level of inclusion you feel here on a scale from 1 to 10, with 1 being not at all included and 10 being completely included, what would you say?
- Are there specific areas or features of the site that make you feel more included or excluded? Can you point these out on the map?
- Reflecting on your experience, can you share any specific moments when you felt especially included or perhaps excluded? What made those experiences stand out for you, and where did they take place on the site?

Use the landscape architectural plans, maps, and diagrams during the conversation to help the participant point out specific areas and features.

3: Sense of Belonging

Main Question:

2. "How do you feel about your sense of belonging on the site? Do you feel at home here at Power To Be?"

Follow-Up:

- What aspects of the site make you feel most at home?"
- Do you feel like you are part of the community here? What experiences or features make you feel this way?
- Are there particular spaces or activities that enhance this feeling?

Use a diagram that kind of gives them a spatial visual

4: Connection, Interaction, and Appreciation for Nature

Main Question

4. "Do you feel connected to nature when you're on site? If so, why and how?"

Follow-Up:

- Which landscape features help you feel connected to nature? Can you point these out on the map?
- What activities or experiences at Power To Be make you feel most connected to the natural environment?
- If you had to rate your sense of connection to nature here on a scale from 1 to 10, with 1 being not connected at all and 10 being extremely connected, what would you say?
- Can you describe any specific moments or experiences that particularly enhanced your connection to nature?

Favorite part of the site? why? Use a map to facilitate

5: Knowledge Increase

Main Question

5. "How have your experiences at Power To Be changed your understanding or appreciation of nature and the environment?"

Follow-Up:

- What have you learned the most about while being here?
- Can you give examples of knowledge or skills you have gained at Power To Be?
- Are there any particular topics or areas that you found especially interesting or valuable?
- How have these experiences and the knowledge you've gained impacted your daily life

6: Mood, Satisfaction, and Mental Well-being

Main Question

6. "How does being in the outdoors at Power To Be influence your mood, level of satisfaction, and quality of life?"

Follow-Up:

- Are there particular activities or aspects of the site that you find especially beneficial for your mental health?
- Can you share any specific moments or experiences related to this?
- On a scale of 1 to 10, with 1 being the least and 10 being the most, how beneficial has the site been for your mental well-being compared to before coming to Power To Be?

7: Physical Well-being

Main Question

7. "Have you noticed any improvements in your physical health or activity levels since you started coming to Power To Be?"

Follow-Up:

- On a scale of 1 to 10, with 1 being the least and 10 being the most, how much has your physical well-being improved as a result of participating in activities at Power To Be?
- Which activities have you participated in at Power To Be, and which one is your favorite?
- How have these activities impacted your physical well-being?
- Are the activities are Power To Be in any way different compared to other physical activities or exercise routines you have tried before?"

Appendix 2: Focus Group Procedure

1) **Greeting and Welcome**

Greet and Welcome

Introduce Yourself

2) **Explain the Study**

Project Overview:

We're here today to explore and understand your experience with the landscape design of the site, and to see how the site is actually performing, to see how it's supporting everyone here at Power To Be and how it can be improved. So your experience can help designers understand how their design is working and inform future projects to do a better job!

And for that, today we're going to be having conversations about how the site helps you connect with nature, connect with each other, how it makes you feel, and how it affects our mood and wellbeing.

Explain the Mood Cards and the Map:

And to help everyone share their experience I'm going to be handing out some mood cards, so there is 5 mood cards. Each of you also has a map with the activities pointed out, there's a section with small icons for the activities on site, and there's also a blank space to draw and write your experience!

Encouragement: Everyone's opinions are important. Feel free to share your thoughts and listen to others as they share theirs.

Icebreaker 1:

"Let's kick things off with a fun question! If you could describe your overall experience with the site and landscape here at Power To Be using just one word or a short phrase, what would it be and why?

Inviting, refreshing, exciting, a color, feeling…

Icebreaker 2: Favorite Part of the Site:

"What's your favorite part of the site and why?"

Activity: Use the map and photos to help remember favorite parts.

Icebreaker 3: Favorite Outdoor Activity:

"What's your favorite outdoor activity at Power To Be, and why do you like it *so much*?"

Activity: Use the map to circle favorite activity.

Knowledge Increase:

Ok, so I know most of you are alumni from the landscaping and restoration program, so I'm curious to know…

"During your time at the landscaping program, what have you learned about the site here at Power To Be compared to before you joined?"

1. **Activity: Drawing or Writing:**

Draw or write about something you've learned. Share your drawing or writing with the group and explain why you chose it. So we can have a few moments to think about that…

2. **Follow-Up Questions:**

"How well do you think the site has supported your learning process?"

3. **Activity: Mood Cards:**
    - **Cards:**
        1. **Very Happy Face** – The site has done a really good job.
        2. **Happy Face** – The site has done a good job.
        3. **Neutral Face** – The site has done an okay job.
        4. **Sad Face** – The site could do better.
        5. **Very Sad Face** – The site has not done a good job.
    - **Instructions:** Choose a card that represents how well the site supported your learning and share why.

Experience of Accessibility:

So one thinks when designing a landscape that's really important is access and accessibility, because we want everyone, absolutely everyone to be able to reach all parts of the site and to make the most of their time here right? To enjoy the outdoors, nature..

So I want you all to think about your experience of accessibility on the site…

"What's your experience with accessibility on the site? How easy or difficult is it to access different areas and features?"

1. **Activity: Mood Cards:**
    - **Cards:**
        1. **Very Happy Face** – Very easy to access.
        2. **Happy Face** – Easy to access.
        3. **Neutral Face** – Okay to access.
        4. **Sad Face** – Difficult to access.
        5. **Very Sad Face** – Very difficult to access.
    - **Instructions:** Choose a card that represents your experience with accessibility. Share why and describe any areas or features that influenced your choice.

2. **Follow-Up:**

"Does anyone have a story or moment related to accessibility on the site that you'd like to share?"

Now beyond just being able to access designers also want their users to be able to experience and enjoy the landscape and the site with their design,

"How well can you enjoy and experience the site when you're out there and getting around?"

- **Activity: Mood Cards Again:**
  - Share how enjoyable and engaging the site is using mood cards. Explain what aspects make your experience better or worse.

3. **Follow-Up Questions:**

Can you think of specific places or features on the site that enhance your experience?

Is there anything that could be improved?

Sense of Belonging:

Now, another very important factor with the Power To Be site when they were designing it was creating a home, creating a community that feels welcoming and feels safe, and inclusive…so I'm interested to know your experience with..

"How connected do you feel with the community and environment at Power To Be since you started the program? Does it feel like home?"

How much do you feel like part of a group, or connected to each other when you're outside…

1. **Activity: Mood Cards:**
   - **Cards:**
     1. **Very Happy Face** – Very connected.
     2. **Quite Happy Face** – Mostly connected.
     3. **Neutral Face** – Mixed feelings.
     4. **Unhappy Face** – Not very connected.
   - **Instructions:** Choose a card that represents your sense of belonging and share why.

2. **Follow-Up Questions:**

"What makes you feel connected here? Are there specific activities or places that make you feel particularly involved or at home?

Connection, Interaction, and Appreciation for Nature:

Ok, now, beyond connecting to each other, how connected do we feel to nature when we're here...do you think the design of the landscape helps you feel more connected to nature when you're here at Power To Be?

"Do you feel more connected to nature when you're at Power To Be? How and why?"

1. **Activity: Mood Cards Again:**
    - Share your connection to nature using mood cards and explain why.

2. **Activity: Mapping Connection:**
    - **Instructions:** Point out on the map which parts of the site help you feel connected to nature…then. Let's think about it and go around and share what we drew.

3. **Follow-Up Questions:**

"Is your connection to nature at Power To Be different from nature outside here?"

Mood, Satisfaction, and Mental Well-being:

The places where we spend time really impacts our mood during the day right, some places we go make us feel happy, energized, make us feel joy, some places make us feel indifferent, or grumpy or tired..right?

"How does being at Power To Be change your mood and mental well-being compared to before you came here or when you're not on the site?"

1. **Activity: Mood Cards:**
    - **Cards:**
        1. **Very Satisfied and Happy** – Very positive impact.
        2. **Good and Okay** – Somewhat positive impact.
        3. **Undecided** – Mixed feelings.
        4. **Unhappy** – Not a positive impact.
    - **Instructions:** Choose a card that represents how the site affects your mood and mental well-being. Share why and describe any activities or moments that have influenced your mood.
    -
2. **Follow-Up Questions:**

"Which activities or parts of the site have the biggest effect on your mood?

Does anyone have a story to share about their mood and mental wellbeing on site?

Physical Well-being:
Power To Be is all about being active and being outdoors, maybe doing a hike, or any outdoor activity right, have any of you participated in those?

Do you think the outdoor activities that you participated in here help you be more active or help you improve your physical well-being compared to before even knowing about this site?

1. **Follow-Up Questions:**

"Do you feel healthier or more physically active since coming to Power To Be?"

Activity: mood cards again.

Closing

Express Appreciation:

"Thank you all so much for joining today and sharing your experiences with us. Your feedback is incredibly valuable and will help designers do a better job thinking about how to design a landscape!

To wrap up, let's do a quick moment to reflect on one of our favorite memories during the landscaping and restoration program, a funny moment, a memorable moment, something you really cherish...and you can think about that and anyone who wants to can share with all of us…

Group photo?

Have a great day!