

GODWIN BIODIVERSITY PRESERVE PARK

Prepared by:

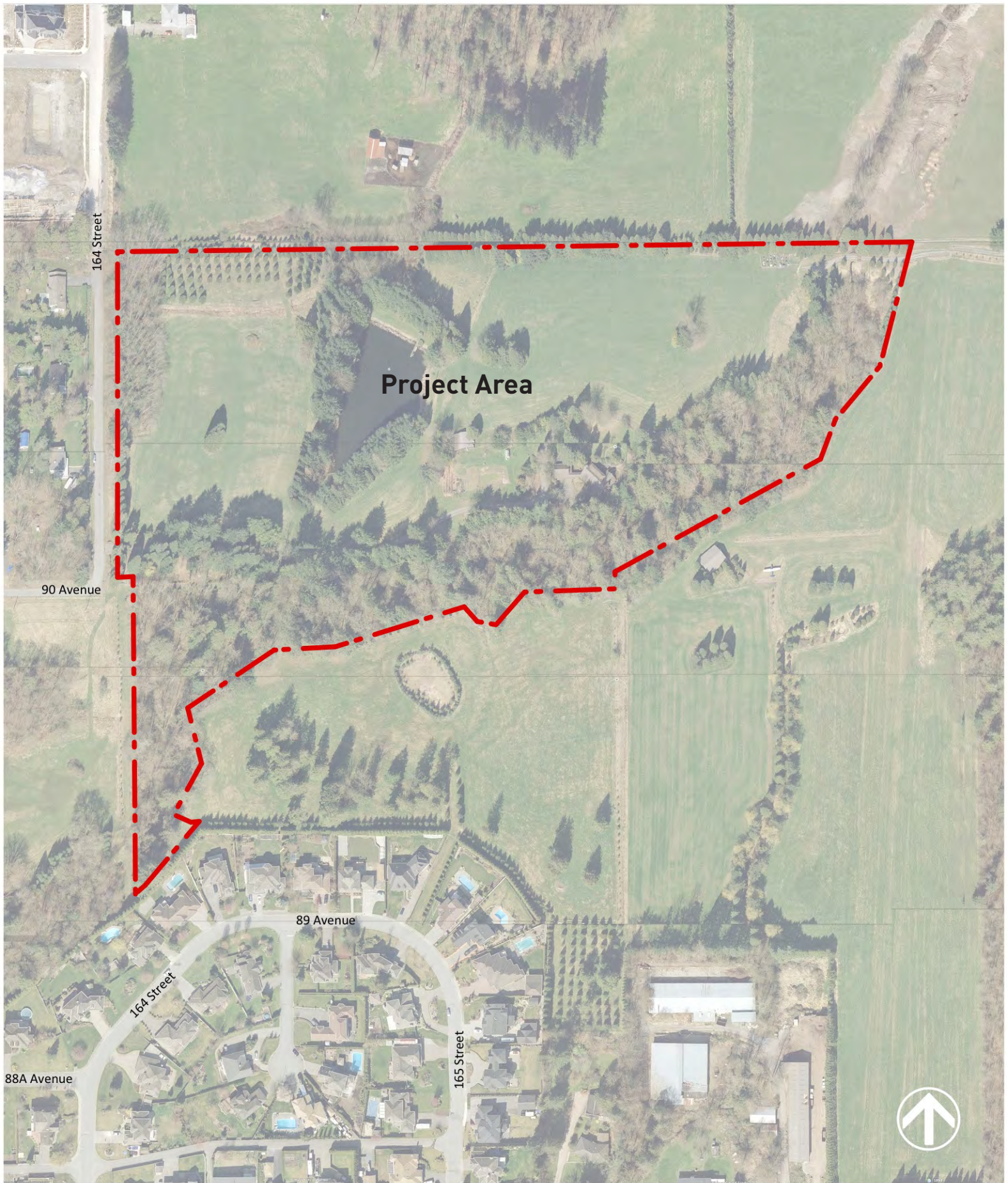


PWL partnership

Table of Contents

| | | |
|------------|--|----------|
| 1.0 | Introducing Godwin Biodiversity Preserve Park | 1 |
| 1.1 | Introduction | 1 |
| 1.2 | Park Dedication Bylaw | 1 |
| 2.0 | Management Context | 2 |
| 2.1 | Regional Significance | 2 |
| 2.2 | Neighbourhood Significance | 3 |
| 3.0 | Park Vision, Principles + Goals | 5 |
| 3.1 | Vision | 5 |
| 3.2 | Principles | 5 |
| 3.3 | Goals + Objectives | 5 |
| 4.0 | Park Plan | 7 |
| 4.1 | Overall Character | 7 |
| 4.2 | Integration of Human and Natural Spaces | 9 |
| 4.2.1 | Activities | 9 |
| 4.2.2 | Access and Environmental Features | 10 |
| 4.3 | Building on Existing Environmental Features | 11 |
| 4.3.2 | Godwin Lake | 11 |
| 4.3.3 | Forest Habitat | 12 |
| 4.3.4 | Heritage Tree | 12 |
| 4.3.5 | Old-Field Habitat | 13 |
| 4.4 | Infrastructure and Amenities | 14 |
| 4.4.1 | Infrastructure | 14 |
| 4.4.2 | Site Access | 14 |
| 4.4.3 | Homestead Agriculture Area | 15 |
| 4.4.4 | Forest Berries | 15 |
| 4.4.5 | Trail System | 16 |
| 4.4.6 | View Corridors | 18 |
| 4.4.7 | Interpretive Signage | 18 |
| 4.4.8 | Public Art | 20 |
| 4.4.9 | Community Involvement and Public Education | 20 |

- 5.0 Park Plan Phasing 22**
 - 5.1 Phasing 22
- 6.0 Management Plan 27**
 - 6.1 Management of Important Environmental Features 27**
 - 6.1.1 Watercourses and Riparian Areas 27
 - 6.1.2 Godwin Lake 28
 - 6.1.3 Forest Habitat 28
 - 6.1.4 Heritage Tree 29
 - 6.1.5 Old-Field Habitat 29
 - 6.1.6 Habitat Features 30
 - 6.2 Facilities, Amenities & Infrastructure 30**
 - 6.2.1 Infrastructure 30
 - 6.2.2 Forest Berry Patches & Homestead Agriculture 31
 - 6.2.3 Trail System 31
 - 6.3 Species at Risk 32**
 - 6.3.1 Dogs 32
 - 6.3.2 Invasive Species, Pests, and Diseases 33
 - 6.4 Risk Management 34**
 - 6.5 Monitoring and Adaptive Management 35**
 - 6.5.1 Monitoring Program 35
 - 6.5.2 Visitor satisfaction 35
 - 6.5.3 Continuous improvement and adaptive management 36
 - 6.5.4 Phasing 36
 - 6.6 Community Involvement, Public Education and Awareness 36**
- Appendix A | Preliminary Site Inventory 37**
- Appendix B | Glossary of Terms 39**



1.0 Introducing Godwin Biodiversity Preserve Park

1.1 Introduction

Godwin Biodiversity Preserve Park is a diverse mosaic of cultivated and natural landscapes situated at 9016 164th Street, straddling the boundary between Surrey's Guildford and Fleetwood neighbourhoods. Previously a working farm, the property includes a homestead and garden, agricultural fields, hedgerows, orchards, natural forests, a heritage tree, a constructed pond and a fish bearing stream.

In 2015, the property was gifted by the landowners (Godwin Family) to the City of Surrey for park purposes through Canada's Ecological Gifts Program. This program administered by Environment Canada in cooperation with other partners allows Canadians an opportunity to protect ecologically sensitive land while also creating a family legacy for future generations. As a recipient of the land, the City of Surrey is responsible for conserving the land's environmental heritage and biodiversity for perpetuity.

CONSERVATION LEGACY: Godwin Biodiversity Preserve

Park is a noteworthy example of the conservation efforts made by private landowners in British Columbia. It is the hope of the Godwin Family that the long-term stewardship and dedication of Godwin Biodiversity Preserve Park will serve as a leading example to other private landowners with an interest in making a tangible and lasting contribution to land conservation in our region.

Due to its size (10.5 hectares), location, diversity, and history, the property provides a unique park programming opportunity. In addition to commemorating the Godwin legacy, this Park will protect significant natural areas and agricultural land next to Surrey's urbanizing Fleetwood Town Centre. Conveying the lands as park and dedicating the land by Bylaw as Park will further contribute to the municipality's overall conservation (green infrastructure) framework. Godwin Biodiversity Preserve Park will provide visitors with an opportunity to immerse themselves in the cultural and ecological landscape of a small family farmstead in the Agricultural Land Reserve, with a focus on biodiversity conservation, passive recreation, nature enjoyment, and building healthy communities.

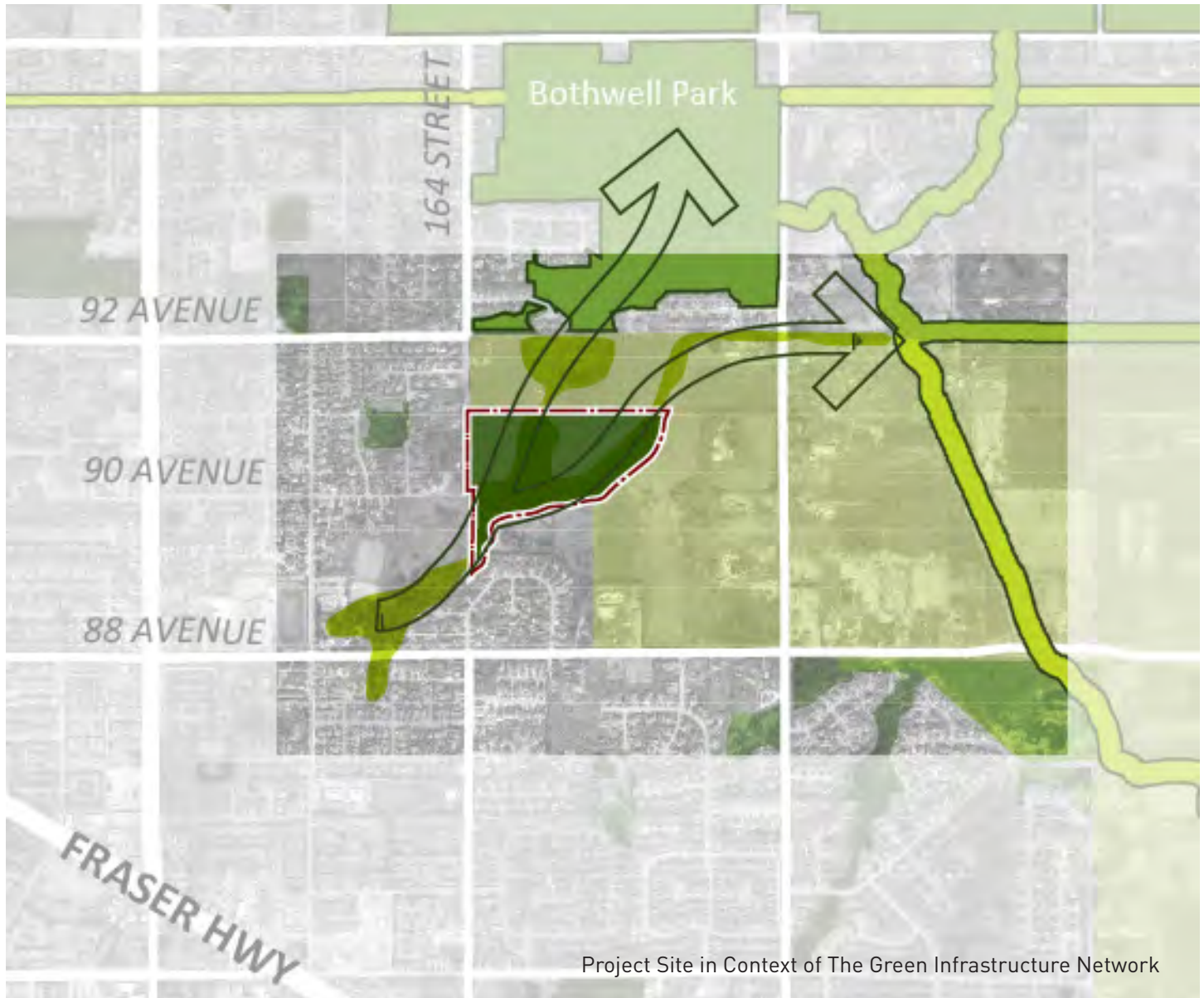


1.2 Park Dedication Bylaw

The dedication by Bylaw of the Godwin Biodiversity Preserve as 'Park' is supported by the Godwin Family, the City of Surrey, and Environment Canada. Parks dedicated under this bylaw are protected as "Lands held by the City of Surrey for the public's use and enjoyment and for the management, conservation and enhancement of the native flora and fauna". This added level of protection further demonstrates the City's interest in protecting this site as a Biodiversity Preserve.

As provided for under Section 30 of the Community Charter, the dedication by bylaw must have at least 2/3 support by vote in Council. Once adopted, the Bylaw can only be rescinded through referendum or the alternative approval process.

2.0 Management Context



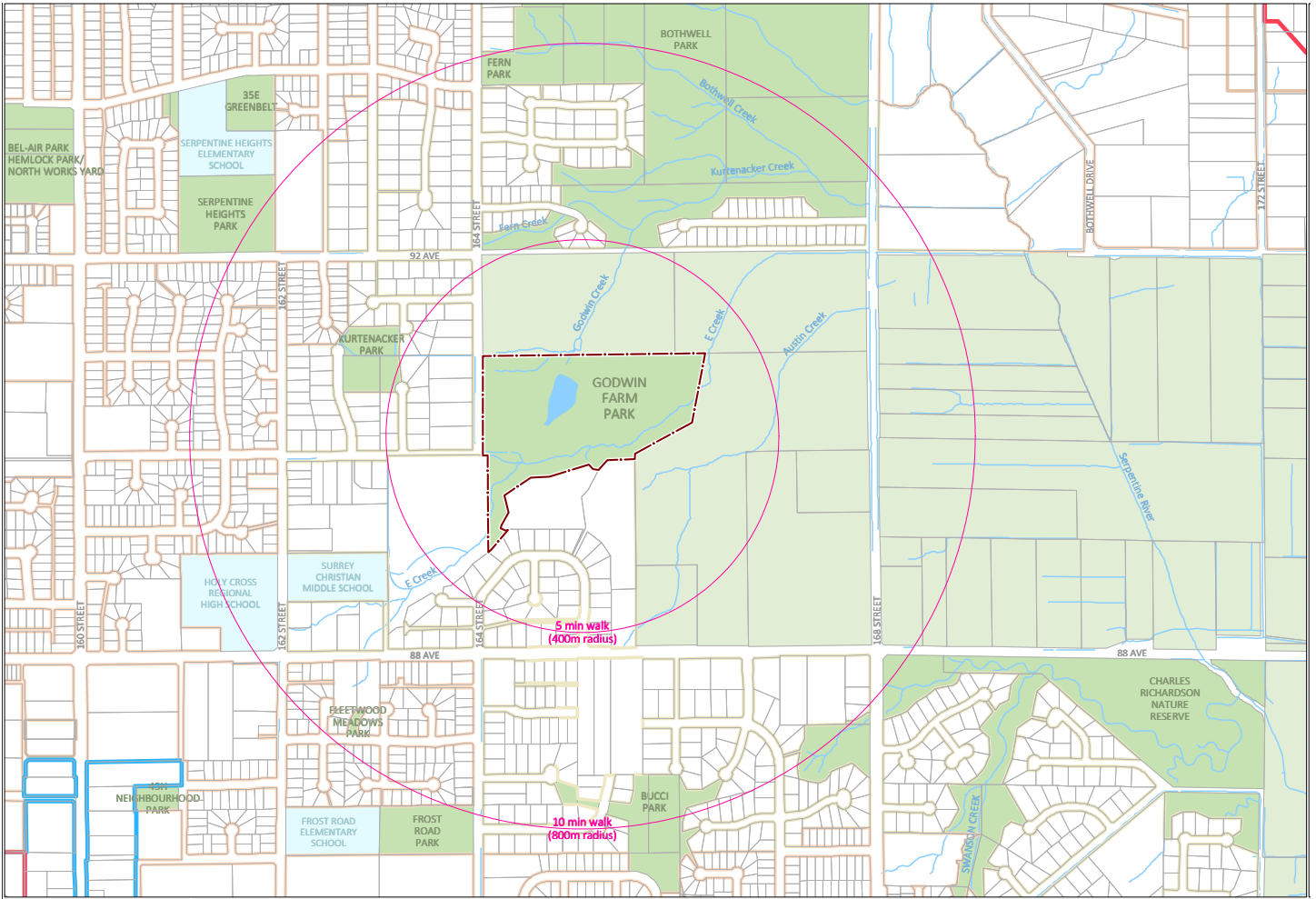
2.1 Regional Significance

Godwin Biodiversity Preserve Park is a significant “western gateway” to a larger regional network of natural and agricultural areas. These include Tynehead Regional Park to the north, productive ALR land to the east, and the headwaters of the Serpentine River. The park’s size, location and features make it ideally suited to support both regional and local management objectives associated with biodiversity conservation, recreation, and building healthy communities.

In 2014, the City of Surrey adopted its *Biodiversity Conservation Strategy* (BCS). The Strategy “recognizes Surrey’s biodiversity as a key foundation of a healthy, liveable and sustainable community.” The backbone of

the BCS is the green infrastructure network (GIN), which is a connected framework of protected natural areas and corridors that provide benefits to both people and wildlife.

Godwin Biodiversity Preserve Park helps to achieve many of the BCS management objectives, including natural areas conservation and providing connectivity to the larger Serpentine River and Tynehead Management Areas. While the BCS acknowledges the limitations of local government to manage for biodiversity on private lands within the Agricultural Land Reserve, the dedication of Godwin Biodiversity Preserve Park serves as an example of collaborative partnership between the public and private sectors for the purpose of conservation.



Walking Distances to Godwin Biodiversity Preserve Park

2.2 Neighbourhood Significance

Increased urban development west and south of the Park, particularly along the Fraser Highway corridor (linking Surrey City Centre and Langley Centre), has underscored the need to establish a core protected area that will protect existing natural features, provide neighbourhood recreational amenities (e.g. pedestrian-oriented trails and community gardens), and improve connectivity for people and wildlife.

The running track at Holy Cross Senior High School, located southwest of Godwin Biodiversity Preserve Park, is one of the few off-street locations for local residents to walk and exercise. The park will provide a neighbourhood alternative that will provide additional amenities and encourage active lifestyles in a more natural environment.



"Godwin Biodiversity Preserve Park is an oasis of cultivated nature at the edge of Surrey's rapidly urbanizing Fleetwood town centre."

Existing wood duck nest on site

3.0 Park Vision, Principles + Goals

3.1 Vision

The Park Vision captures the overall intent of all park management activities from planning and design to management and operations. Aspirational in nature, the Park Vision guides the development of all management strategies.

Godwin Biodiversity Preserve Park is an oasis of cultivated nature at the edge of Surrey's rapidly urbanizing Fleetwood town centre.

Its diversity of specimen trees, enhanced fish-bearing creek, forest and old-field habitats, constructed lake and cultivated orchards, groves and berry patches serve as a living testimony to the stewardship legacy of the Godwin Family.

Passive recreational activities – including trails and lakeside picnic area – provide opportunities for public access, enjoyment and appreciation of this carefully managed and enhanced natural landscape.

The City sustains the park for future generations by protecting and enhancing its natural features and recreational values as a continuation of the Godwin Family legacy.

3.2 Principles

Guiding principles support the intent of the Management Plan.

Biodiversity: a diversity of natural and cultivated landscapes provide habitat for fish, wildlife, plants, and other organisms;

Healthy Lifestyles: nature-based recreational opportunities promote active outdoor pursuits and improve human health and well-being;

Building Community: land stewardship, education and agricultural cultivation create opportunities for community gathering and connection.

3.3 Goals + Objectives

Management goals and objectives are translated from the guiding vision and principles and further define targets for park management. The objectives below also frame “measures of success” that will be used to gauge performance of the Plan towards the overall park vision.

PROTECT AND ENHANCE environmental values and biological diversity

- protect existing environmental values and functions
- enhance biological diversity
- adapt environmental values to a changing climate

DEVELOP a range of passive recreational opportunities

- establish a network of public trails
- develop spaces for community gathering, cultivation and nature interpretation
- ensure safety of all park users

ENGAGE the community and foster productive collaboration between park stakeholders

- engage local community in park programming and enhancement
- foster local partnerships to build community ownership of the Park
- advance the land stewardship legacy of the Godwin Family



View North to Golden Ears, Through the Opening in the Hedgerow

4.0 Park Plan

4.1 Overall Character

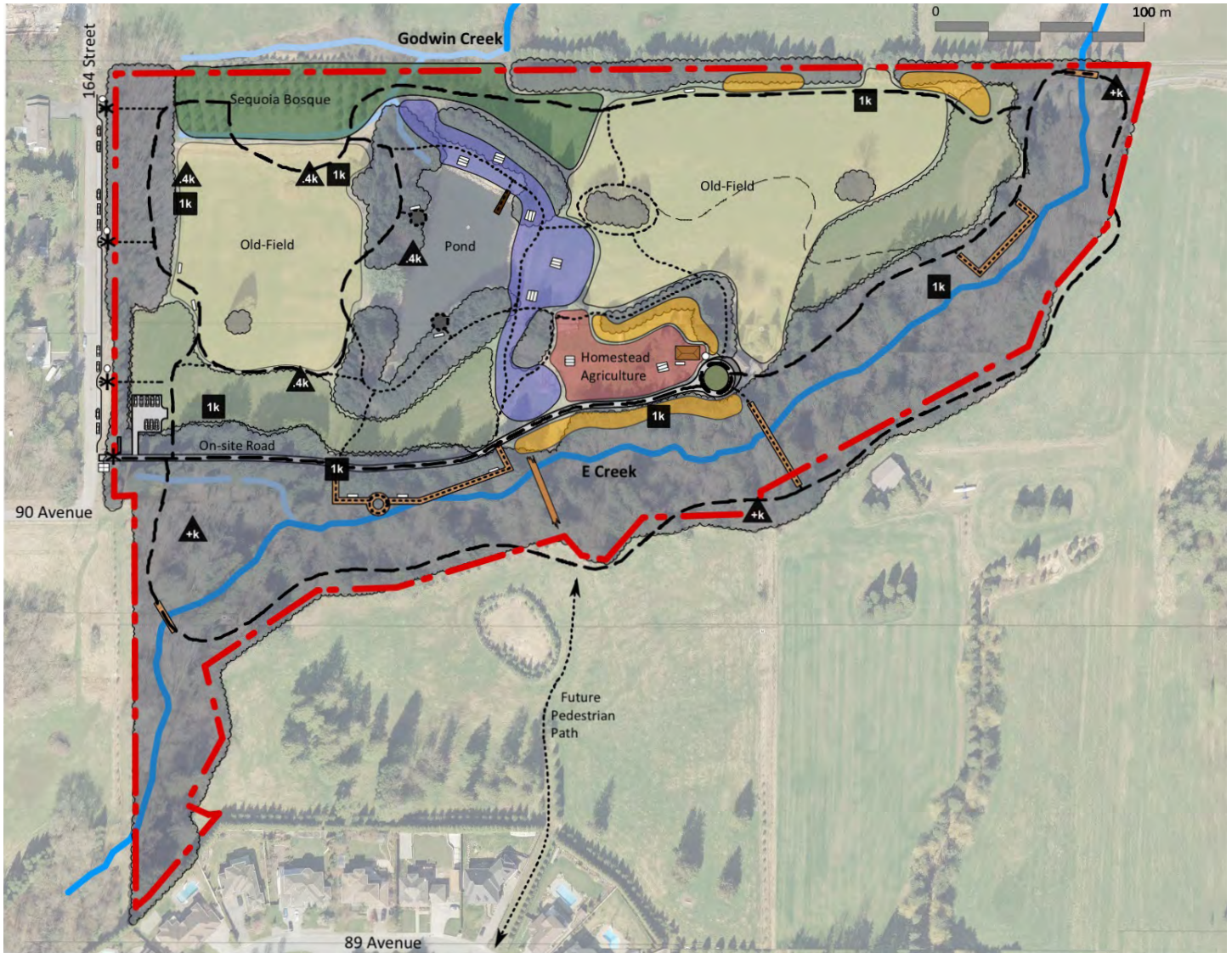
The overall character of the park is meant to be nature-focused. Priority will be given to providing a serene nature-based visitor experience. This means that ecological values will be preserved, restored and enhanced where possible, and that constructed features will be integrated as softly as possible into the landscape. An overlay of park programming features for human use will be organized around, and will interact with, important ecological and topographical features.

- Natural features first provide ecological services and then visual amenity and experience for park visitors;
 - Human activities will be subtly integrated with the natural landscape and restricted in areas of high sensitivity;
 - Trails will be located based on existing features and topography, while promoting a sense of discovery and views to key features. Organic shapes will be favoured over linear sections of trail. Paths will match City of Surrey standards for construction of natural area trails.
 - Nature landscaping and remediation intended to abut directly alongside paths;
- Fencing will recede into the landscape so as not to be a visual barrier. Fences will also:
 - » Allow wildlife passage but discourage people from entering sensitive areas;
 - » Convey the nature based character of site;
 - » Reduce problems associated with physical barriers such as chain link.
 - Pond edge to be naturalized:
 - » In defined areas, paths will extend to the pond allowing interaction with the water's edge;
 - » Provide a more significant contribution to the ecological services.



View Looking East To Riparian Forest

Park Plan



LEGEND

- | | | |
|--|-------------------------|---|
| Sequoia Bosque | 400m Loop | Bench |
| Old-Field | 1.0km Loop | Picnic Table |
| Flex Open Space | 400m Trail Extension | Recycling/ Waste Receptacle |
| Homestead Agriculture | Pedestrian Access Point | Bike Rack |
| Forest Berries | Primary Trail | Boardwalk Features & Bridges |
| Expanded Forest Edge | Secondary Trail | Existing Fallen Log |
| Preserved Riparian & Existing Forest | Tertiary Trail | New Pier |
| Renovated Garage with Public Washrooms Weather Protection & Potential Bird and Bat Habitat | Rock Jetty in Pond | Potential Location for Future Parking Lot (If required) |
| | First Order Stream | |
| | Second Order Stream | |

4.2 Integration of Human and Natural Spaces

Godwin Biodiversity Preserve Park is home to a collection of heritage, cultural and recreational assets that are part of the Godwin Family legacy and their decades-long stewardship of the land. Many of these assets are integrated as key components of the park; however, some will be re-purposed, enhanced or removed to better align with management goals and objectives. This section provides a general overview of the activities and features that are considered as part of this program. More specific management actions are discussed in Section 6.

4.2.1 Activities

The park is intended to provide space for human enjoyment and activities within a natural setting. Human activities within the park will respect the ecological sensitivity of the area; activities or uses that could negatively impact environmental features will not be permitted.

Permitted Activities

- Walking, running
- Picknicking in open lawn areas
- Bird and wildlife watching
- Educational tours
- Berry fruit picking in the homestead agriculture area
- Community events such as salmon release etc.

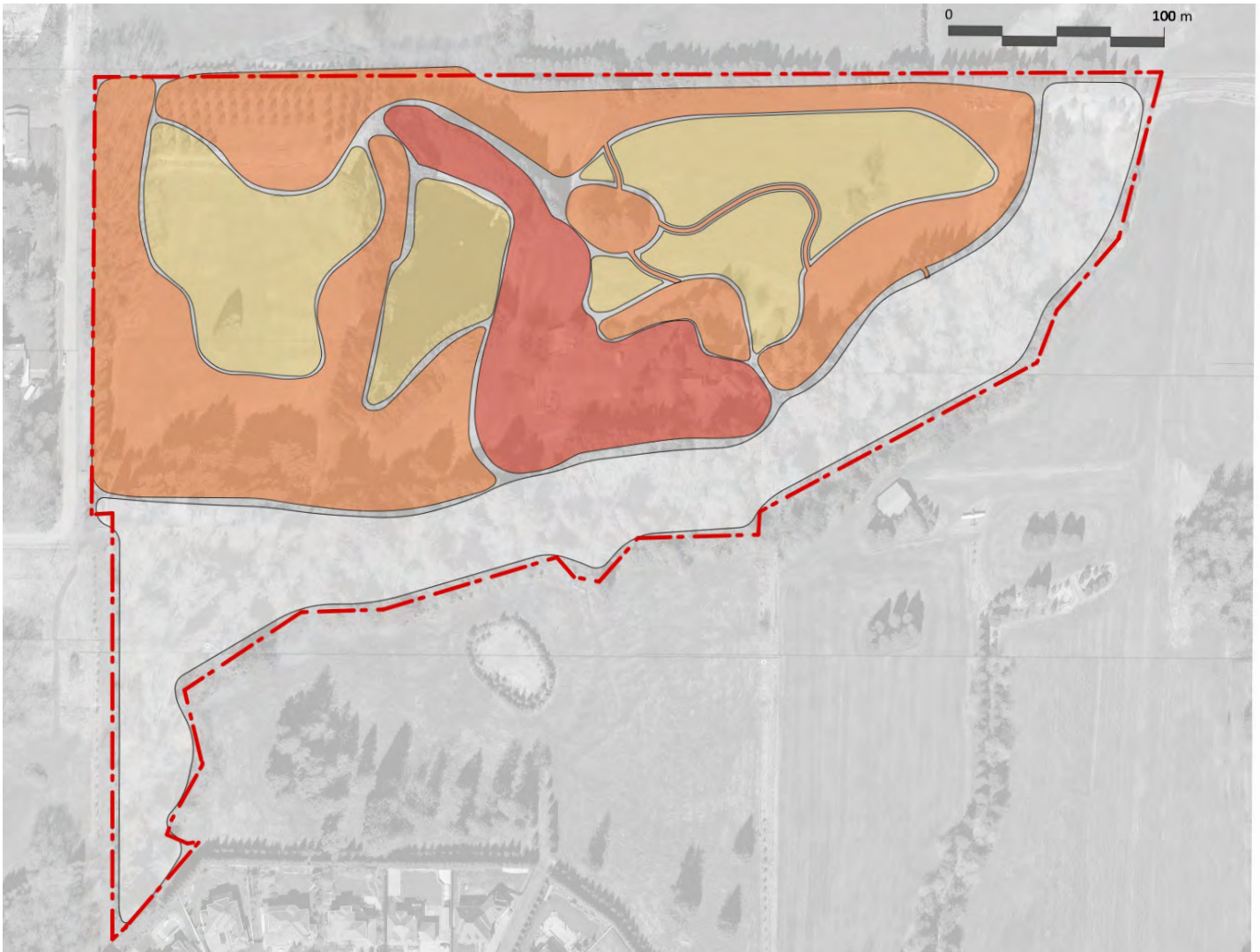
Non-permitted Activities

- Dog walking
- Mountain biking
- Fishing
- Wood collection
- Natural material removal from site
- Plant collection

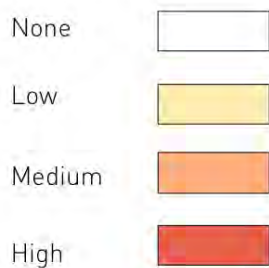
Access to different environmental features will be managed based on the values being protected. Areas with lower sensitivity can support higher levels of activity whereas more sensitive areas require more isolation.



Intensity of Human Use



GRADIENTS OF ACTIVITY



4.2.2 Access and Environmental Features

- **Riparian area:** access is minimized and, where permitted, restricted to lowest-impact activities in designated areas;
- **Interface zone (outer edge of the Park):** considered most vulnerable to urban influences; management focuses on wayfinding/access control, illegal dumping and spread of invasive plants;
- **Old-field and forest habitat:** recreational programming restricted to low-impact activities (e.g. nature trail and wildlife viewing); and,
- **Facilities and community use areas:** Encompasses all extents of the recreational trail program, picnic and homestead area; recreational activities are permitted according to park regulation and access is provided via a hierarchy of trails.

4.3 Building on Existing Environmental Features

Godwin Biodiversity Preserve Park has many existing environmental features such as the salmon bearing creek and surrounding riparian forest, open meadow areas and a constructed pond. The plan proposes to build upon, expand, and enhance these features.

4.3.1 Watercourses and Riparian Areas

Some features in the E Creek riparian area need to be removed to improve ecological integrity and better fit with new park uses:

- Remove the concrete culverts and cattle guard at the north end of the creek;
- Remove all log footbridges;
- Remove the existing bridge close to the home.

The Plan proposes construction of a few select features to be built in the E Creek riparian area to promote education and awareness of key environmental features and to control public access:

- A raised pedestrian bridge at the heritage tree;
- A raised pedestrian bridge to facilitate viewing of the creek and salmon activity;
- Three raised pedestrian bridges are proposed, crossing to the south as part of the final build out of the trail network and to establish a connection to the neighbourhood to the south. The east and west bridges create connections closing the south loop. The central bridge provides a direct link from the park to the community to the south.

4.3.2 Godwin Lake

Godwin Lake requires several interventions to make the area safe and accessible to public, increase habitat value and create a functional amenity:

- Take out both existing docks;
- Remove zipline;
- Construct new wood duck house on a post in original location;
- Build rock jetties and trail connections;
- Plant and establish new riparian vegetation along perimeter (expanding habitat value);
- Build new pier at the north end for public use;
- Open portion of the perimeter forest to allow for a select view across the site from east to west.



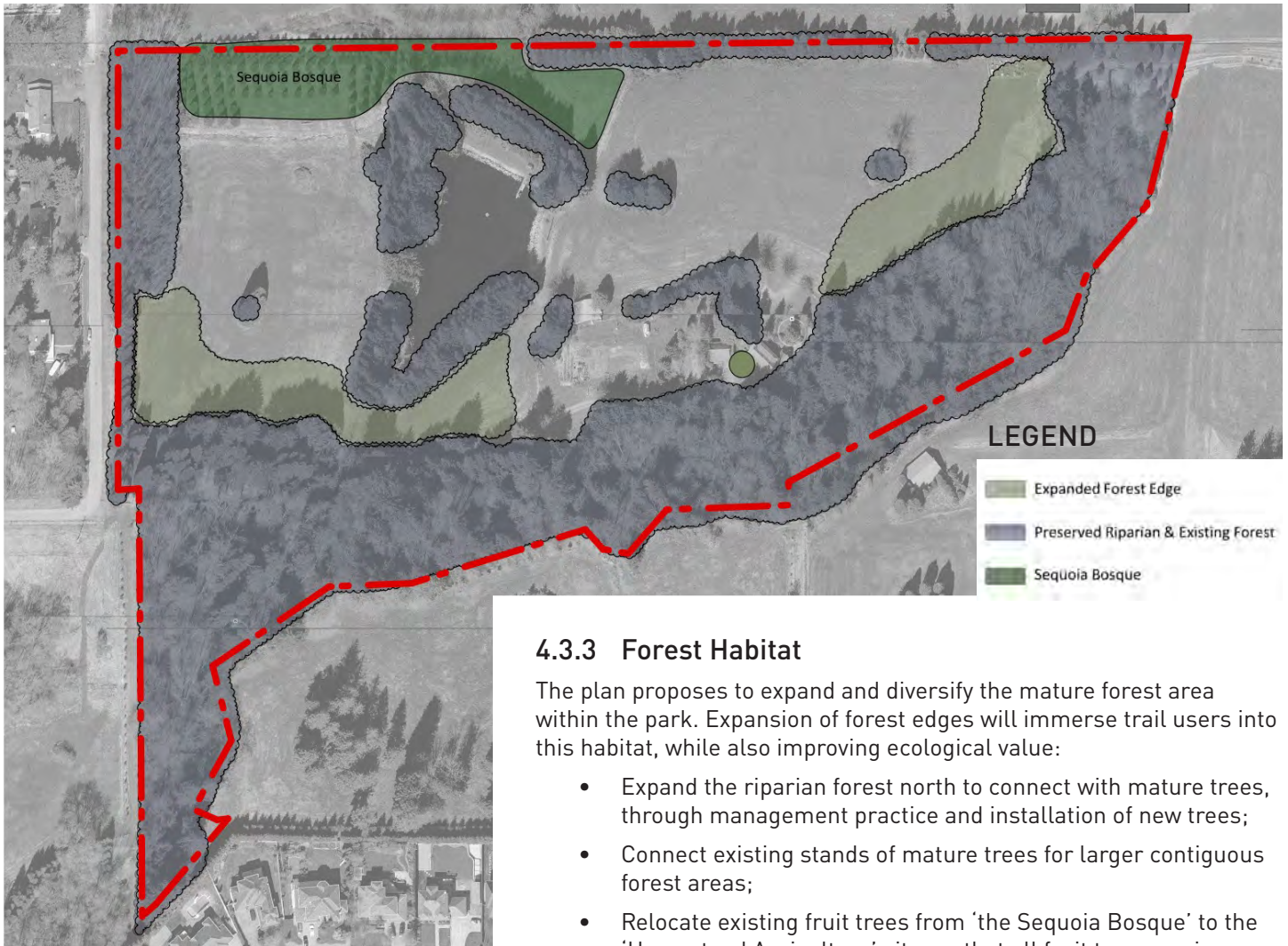
Existing E Creek Culverts



Example of Boardwalk Through Forest



Existing Dock & Diving Board



4.3.3 Forest Habitat

The plan proposes to expand and diversify the mature forest area within the park. Expansion of forest edges will immerse trail users into this habitat, while also improving ecological value:

- Expand the riparian forest north to connect with mature trees, through management practice and installation of new trees;
- Connect existing stands of mature trees for larger contiguous forest areas;
- Relocate existing fruit trees from 'the Sequoia Bosque' to the 'Homestead Agriculture' site, so that all fruit trees are in one location;
- Relocate or plant new Sequoia trees in Bosque to complete the grid form of existing tree nursery.

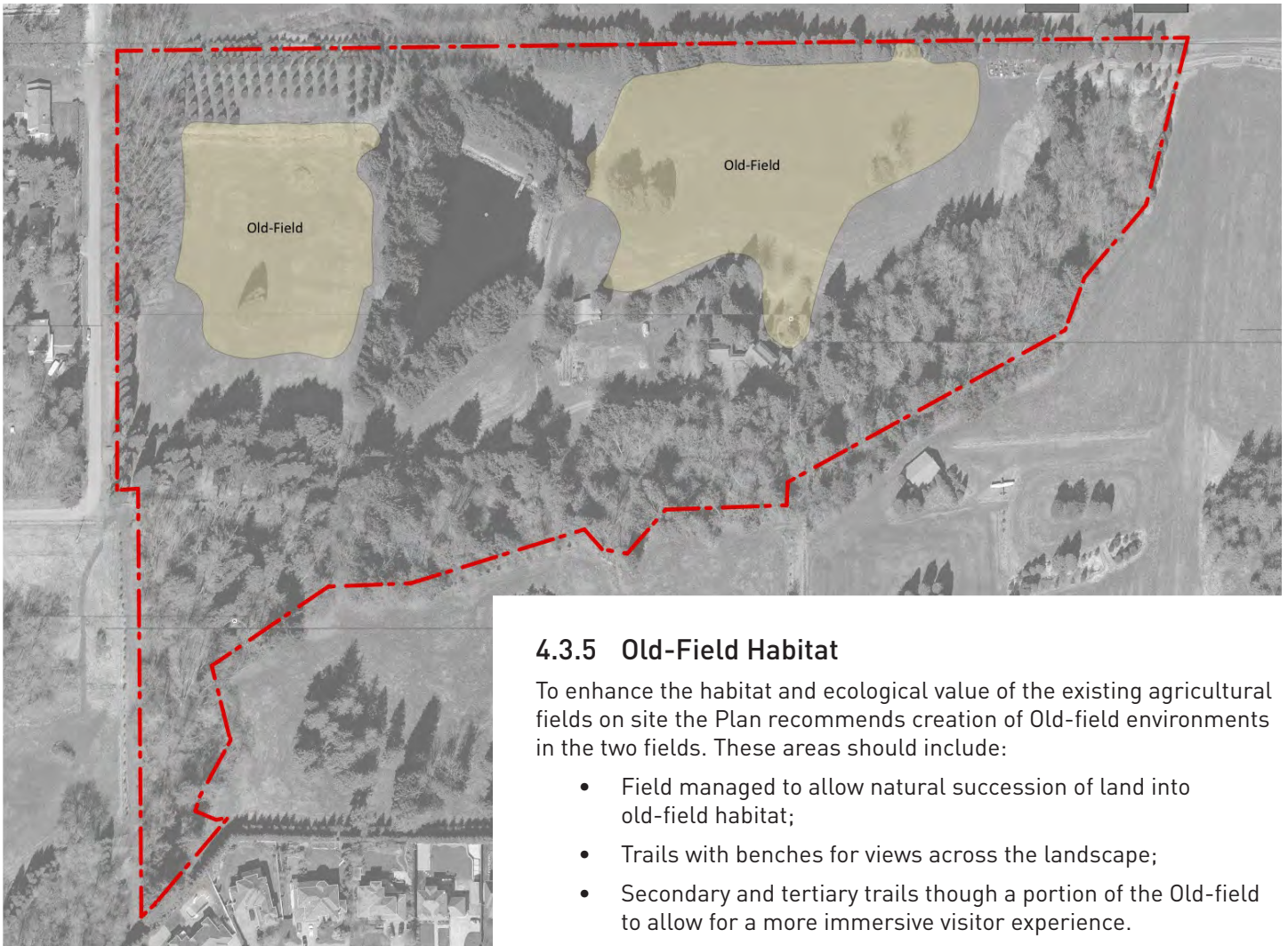


Heritage Tree

4.3.4 Heritage Tree

The heritage tree is an iconic and ecologically significant tree that the public should be able to engage with. To do so, the Plan suggests the following:

- Construct a boardwalk out to the tree in the protected riparian area;
- Wrap boardwalk around the tree allowing 360° engagement and views. Extend boardwalk to fallen log to the east;
- Provide guardrails to restrict public access in the area to only the raised boardwalk.



4.3.5 Old-Field Habitat

To enhance the habitat and ecological value of the existing agricultural fields on site the Plan recommends creation of Old-field environments in the two fields. These areas should include:

- Field managed to allow natural succession of land into old-field habitat;
- Trails with benches for views across the landscape;
- Secondary and tertiary trails through a portion of the Old-field to allow for a more immersive visitor experience.



Example of Old-Field Habitat



Godwin Home



Driveway Entrance



Cattle Bridge at E Creek Culvert

4.4 Infrastructure and Amenities

Godwin Biodiversity Preserve Park is home to a collection of heritage, cultural and recreational assets that are part of the Godwin Family legacy and their decades-long stewardship of the land. Many of these assets are integrated as key components of the park; however, some will be re-purposed, enhanced or removed to better align with management goals and objectives.

In order to provide a passively programmed Park, the Plan proposes new physical amenities and changes to some of the existing infrastructure on the site. This work includes creation of a pedestrian trail system and renovations and demolition of existing structures.

4.4.1 Infrastructure

Numerous buildings and associated infrastructure were constructed on the Godwin family farm. All buildings will be removed except for the semi-detached garage, which will be re-purposed for indoor/all-weather programming, community gathering, and nature interpretation:

- Remove existing house and all ancillary structures on the property, with exception of garage;
- Upgrade garage structure as permanent shelter and park information facility, including washrooms, lighting, etc;
- Remove existing pond docks and construct a new upgraded dock;
- Decommission/remove unnecessary utilities and infrastructure.

4.4.2 Site Access

The farm is currently accessed from two locations. The first is the residential driveway on 164th Street on the west and the second is a farming access road over a culvert at E Creek to the east. The site will primarily be accessed on foot by the public. Access points will be reworked. The Plan proposes the following for access to the site:

- Use the existing driveway as the primary entry point for pedestrians in the first phase;
- Construct on street parking adjacent to the Park on 164th Street when the road right of way is developed;
- Provide multiple pedestrian access points into the Park along 164th Street related to on street parking locations;
- Pursue opportunities to establish trail connection between park and neighbourhood to south during land re-development;
- Consider on-site gravel parking lot at the existing driveway entry if parking demands warrant;
- Three pedestrian connections over E Creek are proposed to link the park with the community to the south.

4.4.3 Homestead Agriculture Area

A small residential scale agriculture area is located north of the original Godwin homestead. It contains an assortment of fruit trees and berry bushes. It is one of the key human-nature integrated spaces on the site. To honour this cultural use and reflect the Agricultural Land Reserve designation, the Plan proposes to maintain and enhance this area. The intent is to promote interaction, education and awareness of the cultural legacy of the site. It is not meant to become a revenue generator or community garden. Management actions include:

- Relocate fruit trees from Sequoia Bosque to centralized area to improve management efficiency;
- Maintain existing berry patches to showcase agricultural production;
- Plant new forest berry patches to showcase natural food production;
- Explore opportunities for partnerships with 3rd parties to maintain the agricultural area if beyond the capacity of City Staff or resources.

4.4.4 Forest Berries

Enhancing the human-nature based relationships with berry patches in the forest will be a focal point to enhance human-nature based relationships in the park. Their presence will help facilitate tactile, sensory, and olfactory experiences within the park, and provide primary school education on natural food sources. There may be opportunities for agricultural field trips and school programs to be incorporated into park programs.



Existing Fruit Tree



Blueberry Picking



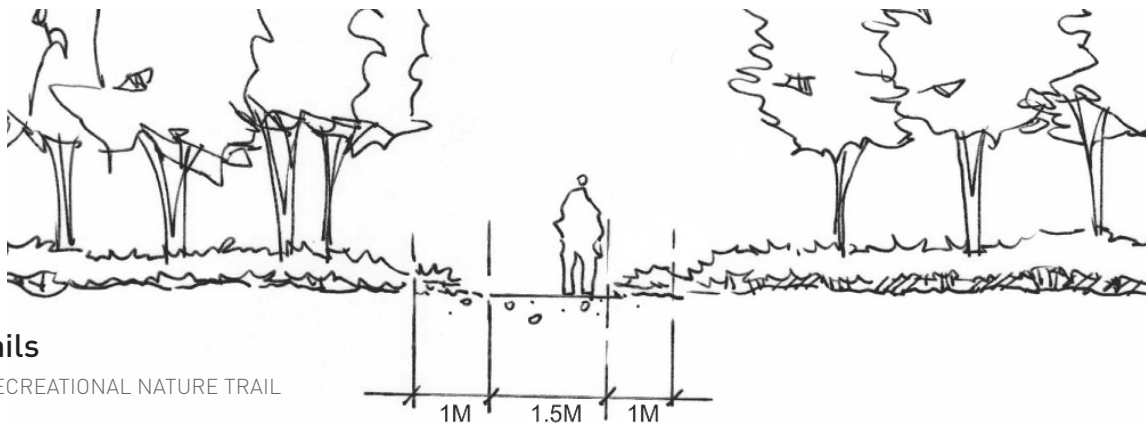
Thimble berry: *Rubus Parviflorus*

4.4.5 Trail System

The farm currently has an informal network of trails, farm roads and a driveway. An enhanced trail system will be developed that builds on the existing network, while providing different experiences for park visitors. Informal trails located within more sensitive habitats will be decommissioned to protect the ecological integrity of the park and reduce risk.

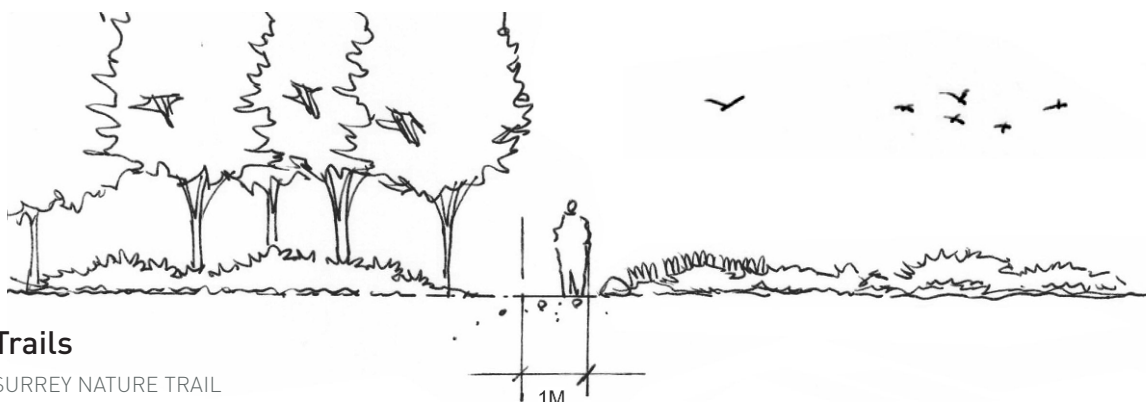
The Plan proposes a multi loop system offering different routes and experiences through the Park. The trails will be constructed through a phased approach allowing the basic loops to be constructed at the outset with additional routes constructed at a later date as demand grows and capital resources permit:

- Construct a network of trails with a hierarchy of scale based on use and location within ecologically sensitive areas and experience;
 - Locate trails through areas that maximize the different experiences with nature, including:
 - » A 400m walking loop to replicate the school track distance within a natural setting;
 - » A 1km loop for easy measurement of running and walking distances;
 - » Connections to surrounding neighbourhoods to facilitate access to the Park;
 - Provide of site furniture at key locations for resting, bike parking and waste management;
 - Reuse existing driveway as the main trail entering the site;
 - Locate berry patches along the non-shaded forest edges adjacent to the trails;
 - Provide a wide variety of native species;
 - Install signage in key locations raising awareness of the edible landscape.



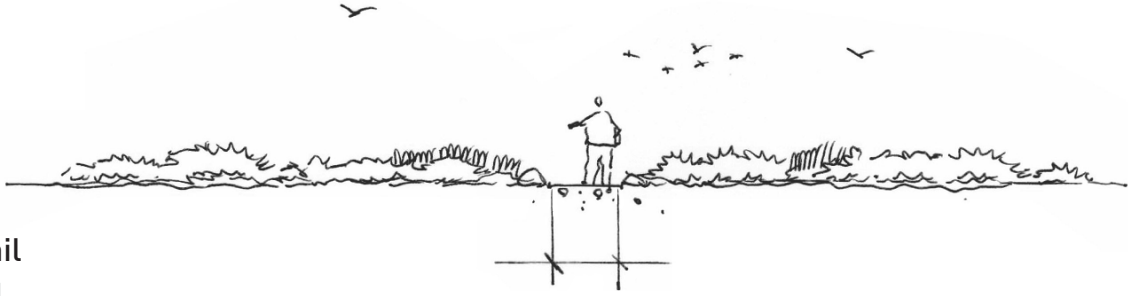
Primary Trails

AS PER CITY'S RECREATIONAL NATURE TRAIL



Secondary Trails

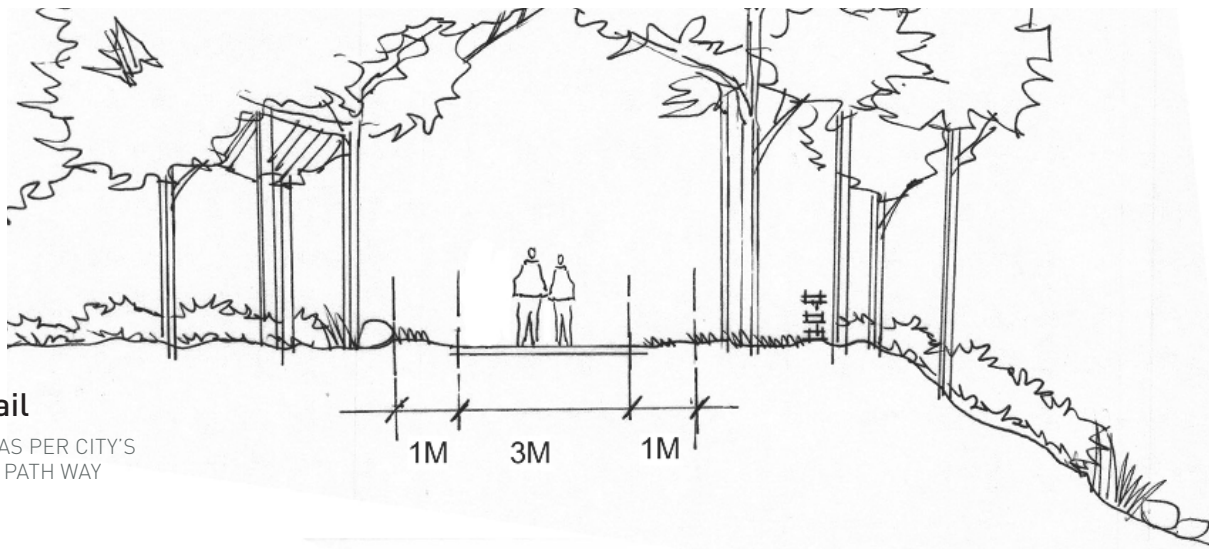
AS PER CITY OF SURREY NATURE TRAIL



Tertiary Trail

OLD-FIELD PATH

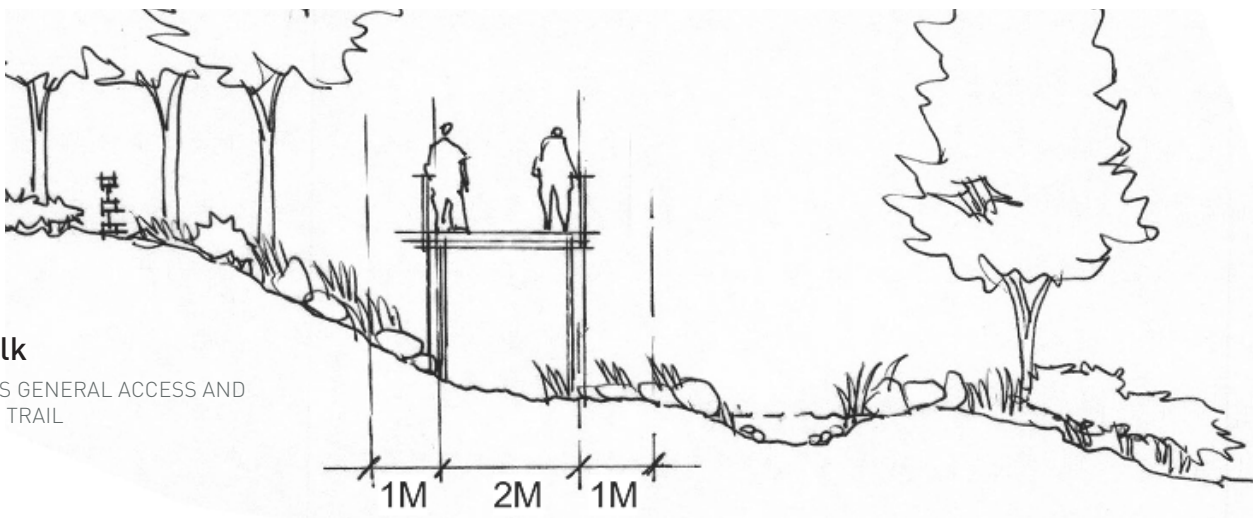
0.6 - 0.9 M



Old Road Trail

EXISTING ROAD, AS PER CITY'S
VEHICLE ACCESS PATH WAY

1M 3M 1M



Boardwalk

AS PER CITY'S GENERAL ACCESS AND
RECREATION TRAIL

1M 2M 1M

4.4.6 View Corridors

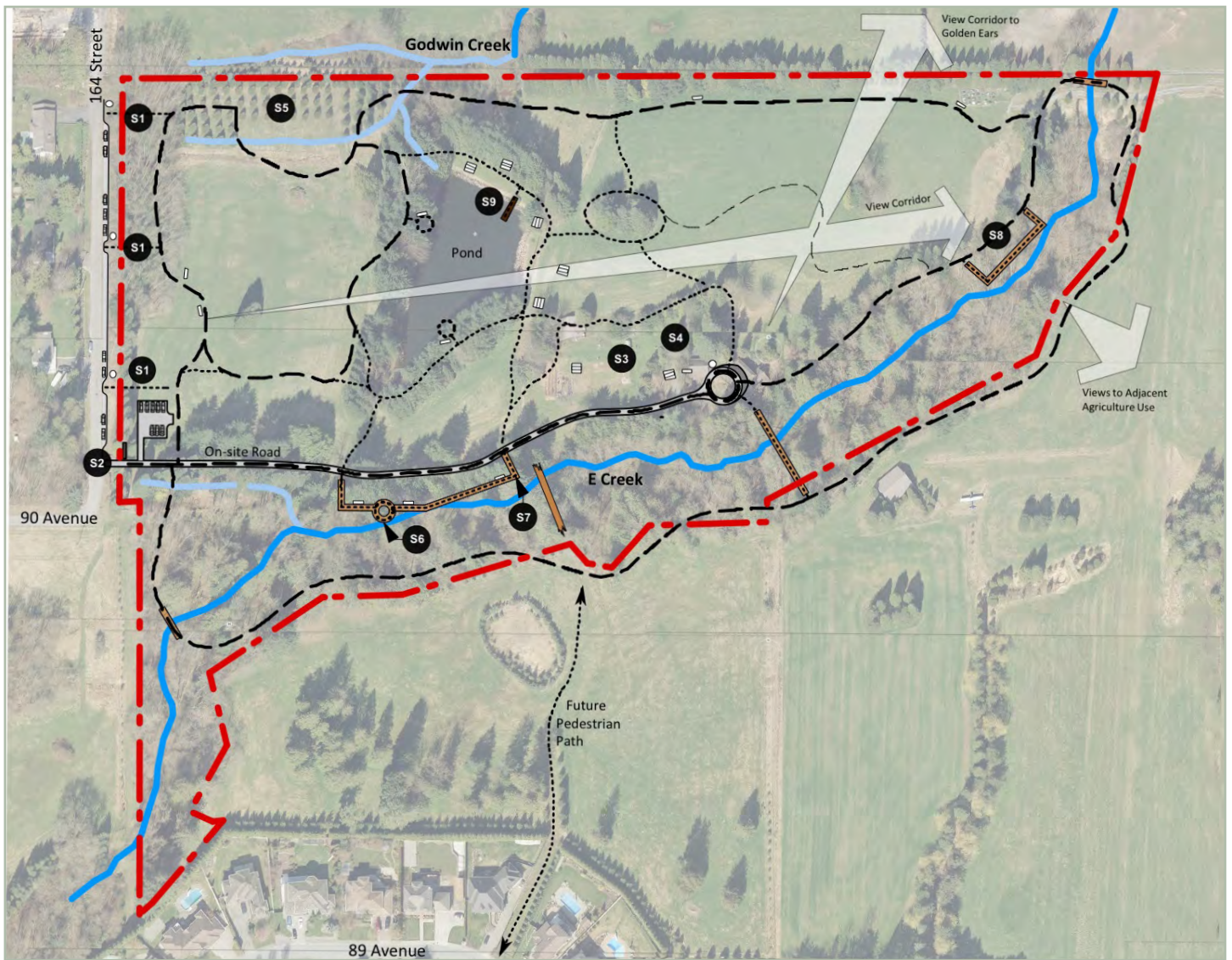
Two important view corridors will be established and maintained. The first replicates the view north towards the Golden Ears mountains from the Godwin residence. The other allows visitors a view across the pond to the old-field habitats and trees that typify the property. Select candidate trees may be pruned or removed (if appropriate) to maintain these views.

4.4.7 Interpretive Signage

Numerous points of interest (as outlined on adjacent map) provide an opportunity for interpretive signage to raise awareness of the natural and cultural history of Godwin Biological Preserve Park:

- References to the Godwin legacy;
- Ecological features;
- Agricultural features;
- Specimen tree identification (similar to tree identifiers in Redwood Park);
- Park programming, permitted uses, hours of use.





Points of Interest with Interpretive Signage

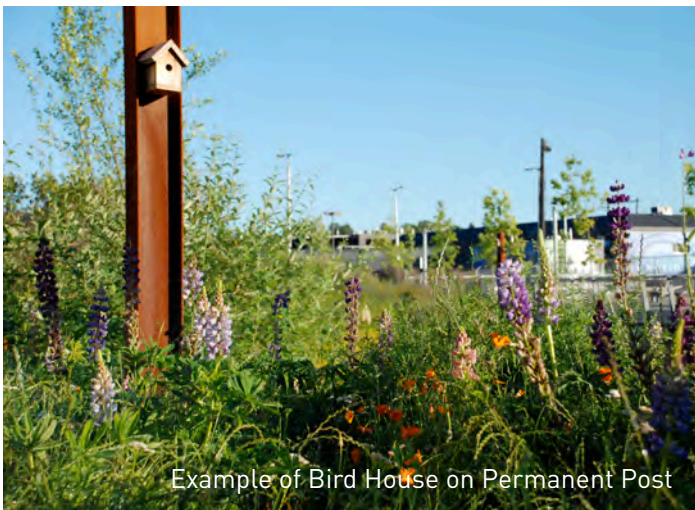
- | | |
|---|---|
| S1 Pedestrian Entry Signage | S6 Heritage Tree Lookout Boardwalk |
| S2 Entry Gate Vehicle & Pedestrian Signage | S7 Lookout at Fallen Tree |
| S3 Homestead Agriculture and Forest Berry Informational Sign | S8 Salmon Lookout Boardwalk |
| S4 Building Informational Sign | S9 Dock / Pier |
| S5 Tree Nursery Sign | |



Owl Box

4.4.8 Public Art

The site provides many opportunities for art installations that reflect the Godwin family's connection to the land. These include framing the highly valued views from the family living room, remembering some of the family adventures around flight, and highlighting the stewardship legacy and important environmental features that are now protected through this ecological gift created for the citizens of Surrey. If a public art feature is advanced in the future, staff in Parks and Public Art should work with the Godwin family and the Public Art Advisory Committee to determine the appropriate site and scale of the public art installation.



Example of Bird House on Permanent Post

4.4.9 Community Involvement and Public Education

A community's sense of ownership of its public spaces relates to a level of stewardship and sense of value of these places which in turn results in lower vandalism and other undesirable activities. Therefore, engaging the community and school groups will be a vital part of the park programming not only to educate them about the Eco Gift and the incredible nature that makes up the park but to also help protect and preserve the sensitive areas.

Community involvement programming should consider activities like tree planting, weed removal, salmon release and park clean up days. These activities will allow people to have a direct hands-on relationship with the park fostering ownership. It also promotes the stewardship of the park because they want to see the results of their handwork be of use and value.

There are many different ways that public education can be programmed for this site including, lectures, demonstrations, tours and events. Clearly the education programs would be centered around the environment and the physical attributes of the site. Topics could include the site ecosystem's, the salmon spawning, bird watching, the homestead agriculture and forest berries, drainage and how the riparian system functions. The educational



Public School Education Program

programs could also be centered around personal health and wellness and reconnecting with nature, or “re-wilding”. These programs could include walking and running exercises on the 400M “track” loop or the 1KM loop and yoga by the pond or simply how to listen to nature.

The features identified in the Park Plan are supportive of these kinds of programming. However community engagement and education programming will have a specific influence on how the garage structure is retrofitted.

An initial project that could be considered is a bird house program. Currently there are numerous bird houses across the property built and placed by the Godwin family. A community school program could be developed that would have student groups working with Naturalists to understand the bird house and nesting requirements of different species of birds, or bats, found at the site. These new bird houses would then be placed out on the site in groupings and locations based on the species of bird or bat. The houses could stay up for a predetermined period of time or until the end of their functional and aesthetic lifecycle. As part of the Opening Day celebration the first set of bird houses could be placed and become an annual celebration commemorating the opening of the Godwin Biodiversity Preserve Park.

5.0 Park Plan Phasing

5.1 Phasing

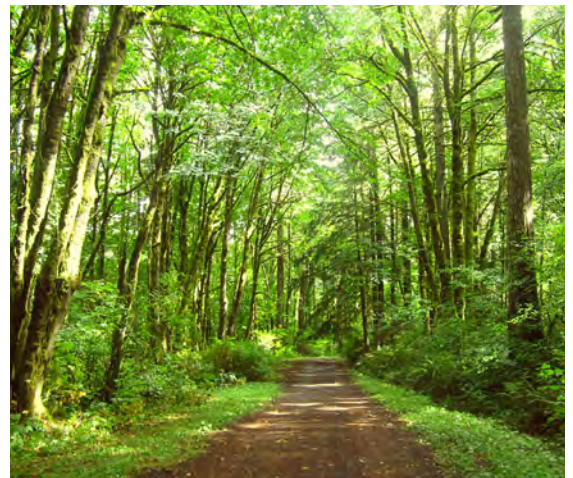
Godwin Biodiversity Preserve Park will be developed over an extended time period as resources and capacity permit. A three-phase approach will be followed, with prioritized actions based on an assessment of capital costs, environmental features, risk and park user needs. Initial development of the park will remediate and preserve ecologically sensitive areas, develop the programmatic ecological character areas on site, and introduce the main human use trails and areas. Phase two will expand on and enhance the human-oriented amenities in the park, particularly the trail network. The final phase will create a park trail system that wraps around the south end of the property.



Example of Split Rail Fence Beside a Trail Protecting a Riparian Area: UniverCity Burnaby



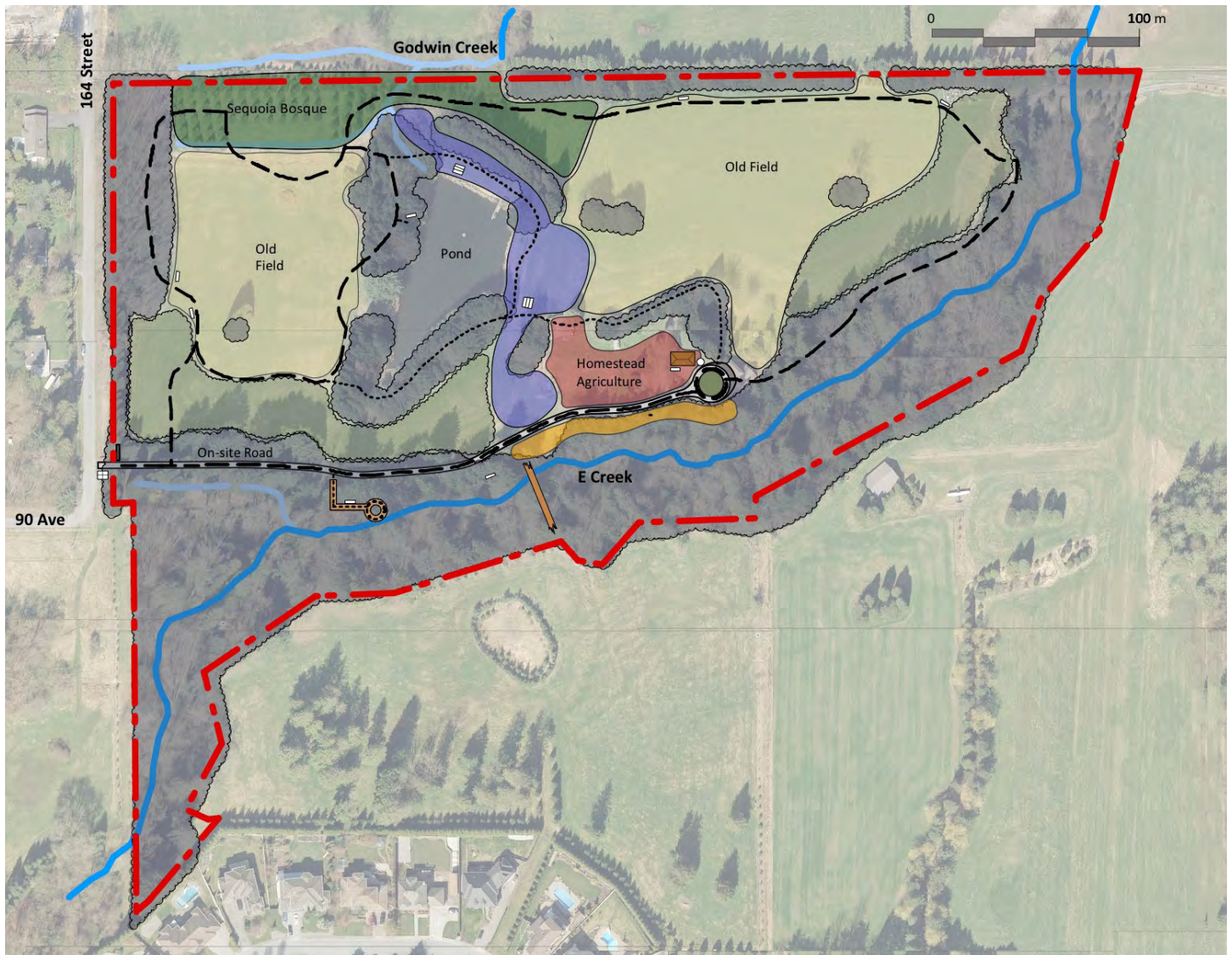
Example of Seating by Natural Areas



Example of Primary Trail Through Forested Area



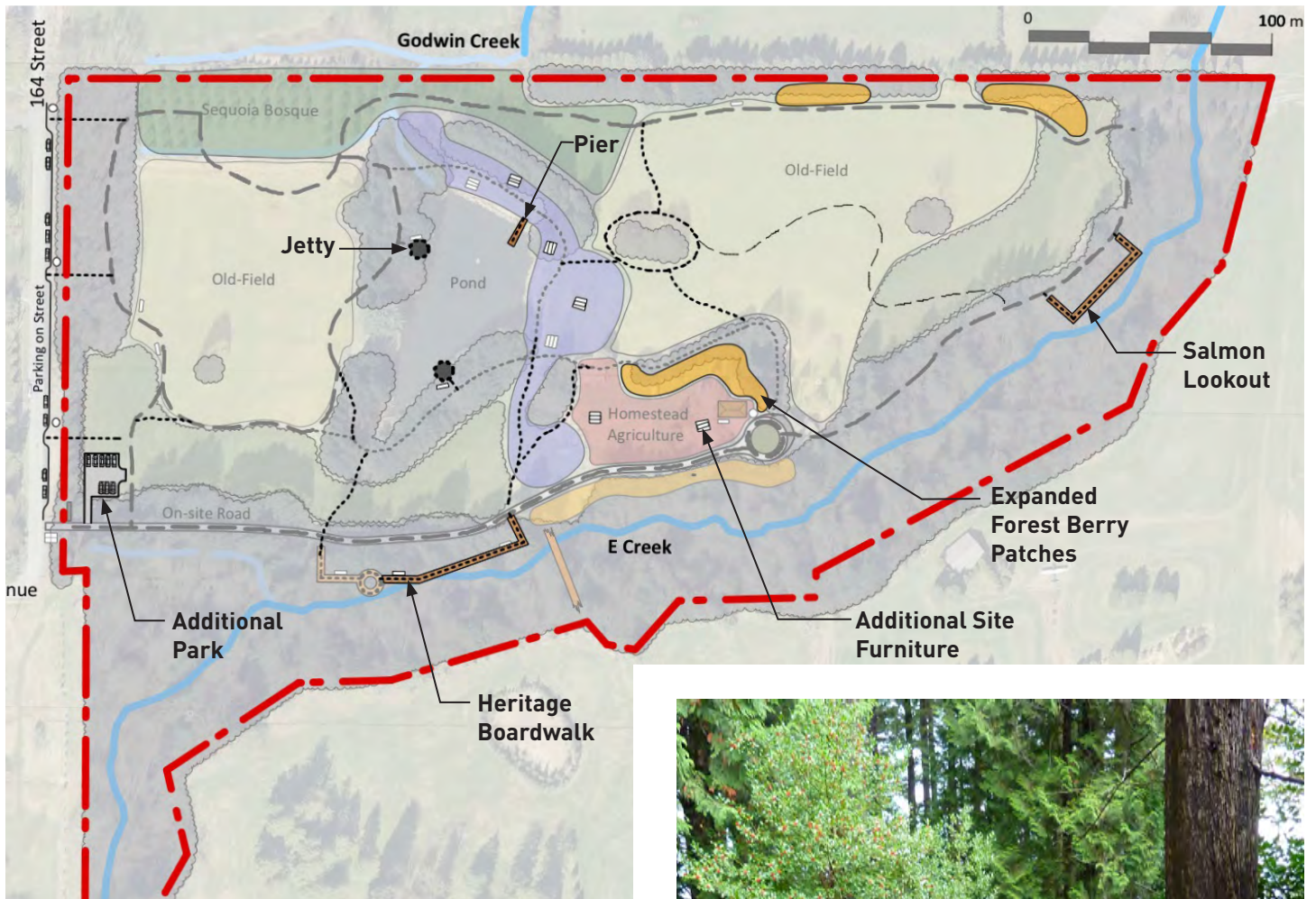
Example of Naturalized Edge of a Pond with Habitat Features



5.1.1 Phase 1

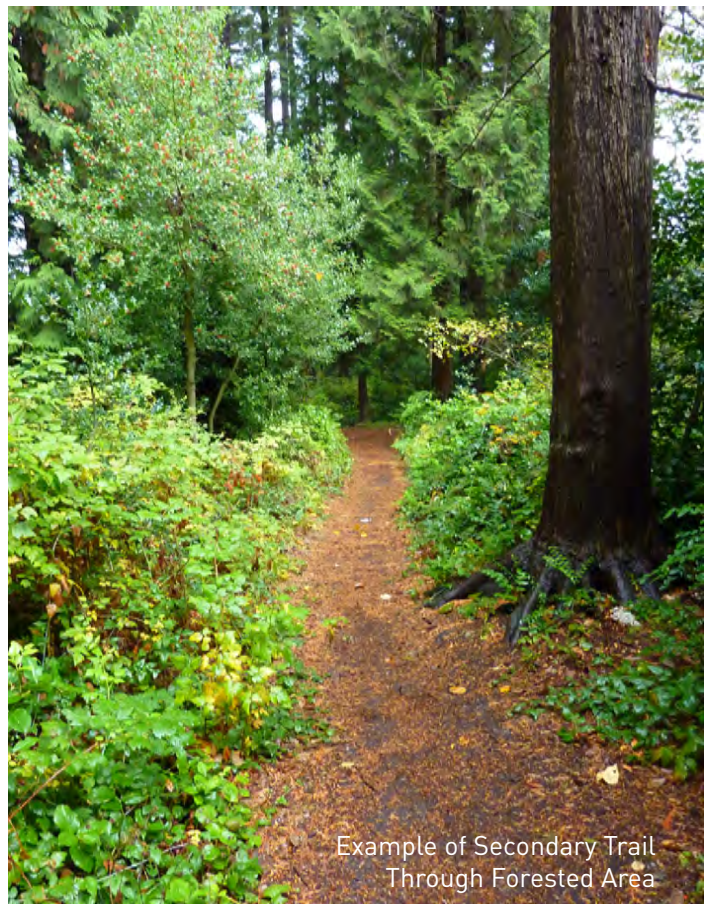
Initial development of the park will remediate and preserve ecologically sensitive areas, develop the programmatic ecological character areas on site, and introduce the main human use trails and areas. Phase one actions include:

- Primary access point with signage at original driveway location;
- Fence around ecologically sensitive areas;
- Prune vegetation to enhance view corridors;
- Primary trails through site, and some secondary trails at pond;
- Heritage tree boardwalk (the first section),
- Some interpretive signage installed on site related to primary trail features;
- Trail construction including reducing pavement width and turnaround installed;
- Renovate garage to provide weather protection area with options to incorporate bird and bat boxes into design;
- Remove existing culvert and cattle guard and restore E Creek at North East corner of property;
- Site furnishings on primary trails, some in the flex open space, and at entry.

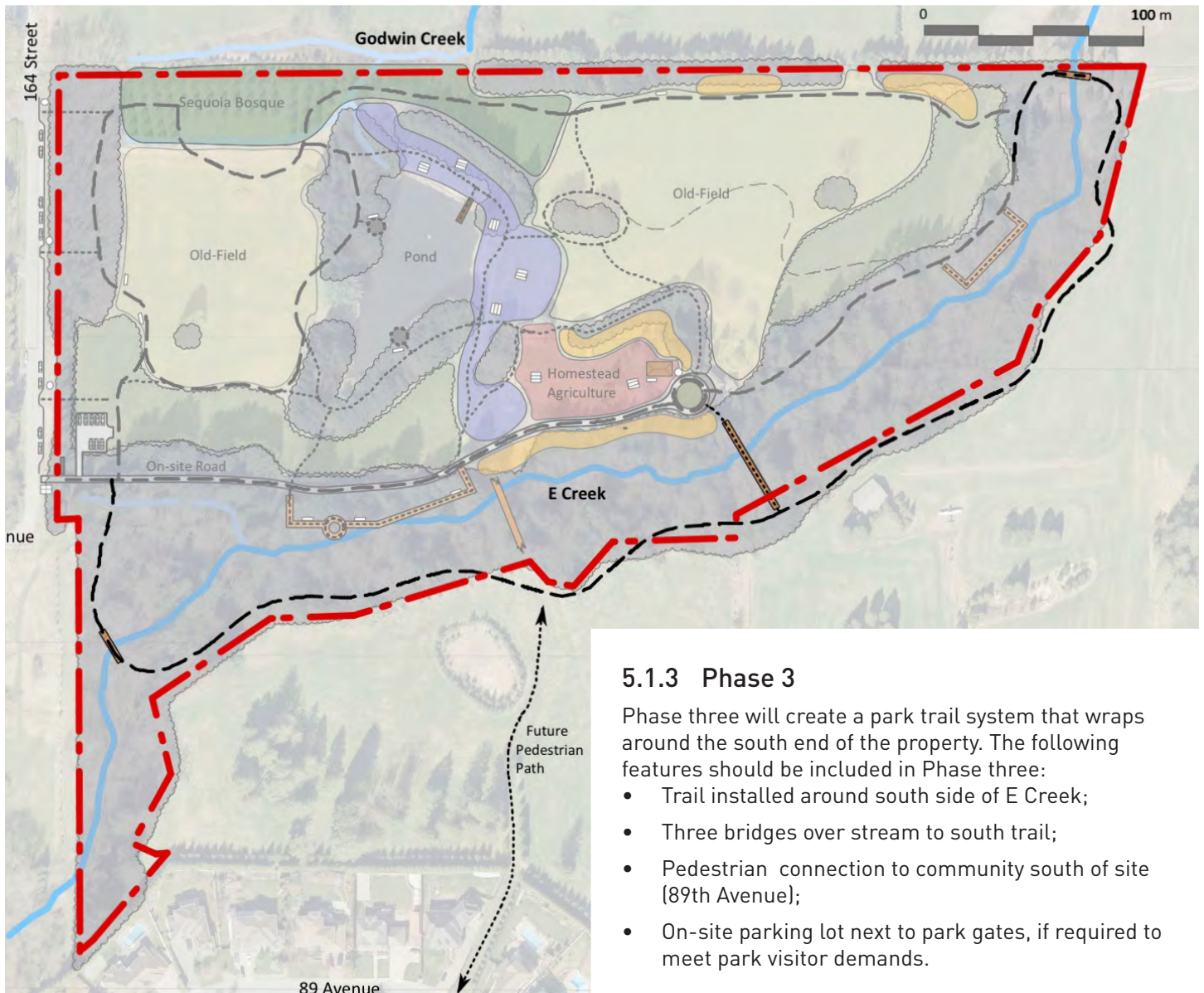


5.1.2 Phase two actions include:

- Development of parking along 164 Street;
- Secondary path access from road and on street parking, including signage and site furniture;
- Construction of salmon lookout and second section of heritage tree boardwalk;
- Jetties and pier in pond constructed to allow people to engage with water's edge;
- Expand homestead agriculture and forest berry patches;
- Expand secondary and tertiary trails based on desire lines and to meet access requirements of new amenity areas;
- Additional site furniture to meet demands;
- Add public washrooms to garage (as required);
- Additional onsite parking added (as required).



Example of Secondary Trail Through Forested Area





Conserve Nature While Providing Opportunities for Passive
Recreational and Community Interaction

6.0 Management Plan

Godwin Biodiversity Preserve Park is intended to conserve nature while providing opportunities for passive recreation and community interaction. Given these two often conflicting objectives, it is important to understand the current and future needs of Park visitors. It is also important to identify what, and to which degree, environmental features are sensitive to user impacts.

Implementation of the Plan is supported by specific management actions. These actions respond directly to the plan goals and objectives and ensure the vision and principles of Godwin Biodiversity Preserve Park are upheld. Management actions are categorized into sub-sections:

- a. Important environmental features;
- b. Facilities, infrastructure and amenities;
- c. Risk;
- d. Community Awareness, Public Involvement and Education; and
- e. Plan Updates and Monitoring

6.1 Management of Important Environmental Features

Godwin Biodiversity Preserve Park has a variety of environmental features including a salmon-bearing creek and several other watercourses, a constructed lake, riparian forest with large, mature trees, planted forest edges, and agricultural fields. These habitats support, or potentially support, a variety of plants, insects, fish, birds, and other wildlife, some of which are considered species of conservation concern. Accordingly, there are many opportunities for habitat restoration and enhancement (e.g. old-field succession) and other initiatives to further improve biodiversity on site.

6.1.1 Watercourses and Riparian Areas

Watercourses and riparian areas are acknowledged as the highest value and most sensitive environmental features on site. Watercourses include Class A and B watercourses, the most prominent of which is E creek which borders the south and east sides of the property. According to the Preliminary Environmental Assessment of the site, the “gravelly substrates and diverse instream complexity of E Creek provide excellent spawning and rearing habitat for salmonids, and refuge habitat by undercut banks and instream large woody debris.” Occurrence of salmonids (including Coho and Chum Salmon and resident Cutthroat Trout) is well documented. In addition, the riparian area associated with E creek has a relatively healthy and intact, mixed-wood forest with a well-developed understory shrub component and large, mature conifers.

| Watercourses Management Action | Timeline (yrs) |
|--|----------------|
| Monitor E Creek riparian buffer, stream channel, and water quality for potential impacts resulting from natural or human causes, including introduction of deleterious substances. | Ongoing |
| Conduct annual monitoring for salmonids in E Creek, and potential barriers to upstream migration. | Ongoing |
| Complete an inventory and assessment of physical and habitat characteristics of aquatic resources. | 1-2 |
| Enhance riparian habitat next to Class B tributaries to protect water quality. | 1-2 |
| Expand riparian area on north side of E creek by planting ecologically suitable, climate adapted tree species at a density of 500 stems per hectare. | 1-2 |
| Identify and restore degraded areas in the E creek riparian area. | 1-2 |



6.1.2 Godwin Lake

Godwin Lake (pond) is a small constructed reservoir located near the centre of the property. The pond was excavated in 1974, and has since been drained and dredged twice to remove sediments that have accumulated over time. There is no direct connection to other watercourses on the property other than through an emergency overflow spillway to Godwin Creek and an outlet control valve to Kurtenacker Creek. The pond was regularly stocked with Rainbow Trout by the Godwin Family; however, pond conditions do not support a self-sufficient population. Aquatic vegetation is sparse on the pond edges, but there are numerous trees and open (grassy) areas surrounding it.

| Management Action | Timeline (yrs) |
|--|----------------|
| Monitor the hydrological inputs and outputs, depth and water quality of Godwin Lake. | Ongoing |
| Continue regular stocking program (Rainbow Trout) to enhance ecosystem values, but do not permit recreational fishing. | Ongoing |
| Maintain pond infrastructure (outflow valve, overflow spillway), while ensuring pond (and fish) are isolated from adjacent watercourses. | Ongoing |
| Complete an inventory and assessment of physical and habitat characteristics of aquatic resources. | 1-2 |
| Enhance riparian habitat next to Godwin Lake to protect water quality. | 1-2 |
| Remove existing facilities (pond wharves, zipline tower, gazebo). | 1-2 |
| Replace existing wood duck nest box on pond wharf. | 1-2 |
| Construct new, upgraded pier and jetties | 1-5 |
| Dredge pond to maintain depth and prevent excessive infilling due to sedimentation over time | >10 |



6.1.3 Forest Habitat

Godwin Biodiversity Preserve Park has a diversity of natural and semi-natural forest, orchards, and trees, much of which was planted by the Godwin Family over several decades. Although some of the managed forest areas are currently lacking in tree species diversity, the ultimate management objective in these areas is to maintain forest health and enhance overall biodiversity.

| Management Action | Timeline (yrs) |
|---|----------------|
| Monitor forest health for impacted/degraded vegetation and/or sudden changes to plant communities/health resulting from pests, disease, or other damage agents. | ongoing |
| Conduct a tree risk assessment for the park and implement appropriate mitigation measures. | 1-2 |
| Integrate Godwin Biodiversity Preserve Park into City's Green Infrastructure Network. | 1-2 |
| Identify and restore degraded forest areas by planting ecologically suitable, climate-adapted native trees and understory species. | 1-5 |
| Selectively thin and prune trees to establish framed view corridors. | 1-5 |
| Repair and/or enhance barriers (e.g. fencing, logs) to prevent impacts to fragile ecosystems. | 1-2 |
| Implement a tree nursery and planting program to support forest regeneration on- and off-site. | 5-10 |

6.1.4 Heritage Tree

A large Douglas-fir (*Pseudotsuga menziesii*), designated as a heritage tree by the City of Surrey, is located in the E Creek riparian area. Due to its significance to the City and to the Godwin family, special management considerations are warranted to protect this tree while offering a unique visitor experience in the park.



| Management Action | Timeline (yrs) |
|---|----------------|
| Monitor heritage tree to assess condition and health. | ongoing |
| Protect root zone of heritage tree by constructing a raised boardwalk around the base of the tree, in addition to installing a controlled access boardwalk with fencing | 1-2 |
| Install interpretive sign specific to heritage tree | 1-2 |

6.1.5 Old-Field Habitat

Approximately one-third (~3 hectares) of the park has the potential to be managed and/or enhanced as old-field habitat in support of biodiversity objectives. The South Coast Conservation Program describes the significance of old-field habitat as follows:

“Typically old-field communities are dominated by non-native pasture or soil cover grasses, however over time, in the absence of disturbance and active farming, they begin to function as natural systems, replacing the ecological void of critical grassland and estuarine habitat lost to urban development and industrial farming. Old-fields are the preferred habitat of a range of species.”

Old-field habitat has particular value for pollinators (butterflies), amphibians, birds, and mammals that depend on early successional habitat (e.g. shrublands).



| Management Action | Timeline (yrs) |
|--|----------------|
| Monitor old-field habitat for impacts/degradation and/or sudden changes to plant communities/health. | ongoing |
| Enhance old-field habitat through controlled succession. Grass, herb and shrub communities should be allowed to develop, in addition to scattered tree thickets (<10m square in area). A mowing schedule (once (1) every year) should be determined following an assessment of the rate of natural regeneration. | ongoing |
| Complete an inventory and assessment of old-field habitat resources. | 1-5 |



6.1.6 Habitat Features

The Godwin family has enhanced natural habitat on the property by installing numerous nest boxes throughout the property. A micro fish hatchery on E Creek was also operational for several years. Habitat enhancement on the property should be continued by constructing both artificial and natural features that can meet life requisite needs for a variety of wildlife.

| Management Action | Timeline (yrs) |
|---|----------------|
| Convert conifer trees greater than 30 cm diameter into wildlife trees when mitigating tree risks (where suitable and safe to do so). | ongoing |
| Engage volunteers to construct, monitor and maintain bird nesting boxes/platforms. The existing wood duck nest box on Godwin Lake should be replaced. Construction of a barn owl house could be investigated as presence of this species has been recorded in adjacent agricultural land. | 1-2 |
| Install bat boxes where appropriate and implement a bat monitoring program. | 1-2 |
| Place large, woody debris along edge of Godwin Lake in areas subject to least human disturbance. | 1-2 |
| Create a floating habitat island on Godwin Lake. | 1-5 |
| Encourage growth of small shrub and treed patches within old-field habitat. | ongoing |

6.2 Facilities, Amenities & Infrastructure

6.2.1 Infrastructure

The following management action items indicated and proposed timelines are for the previously noted infrastructure in section 4.4.1 and 4.4.2.

| Infrastructure Management Action | Timeline (yrs) |
|---|----------------|
| Remove existing house and all ancillary structures on the property, with exception of garage. | 1-2 |
| Upgrade garage structure as permanent shelter and park information facility, including, lighting, etc. | 1-2 |
| Remove existing pond dock. | 1-2 |
| Decommission / remove unnecessary utilities and infrastructure. | 1-2 |
| Deactivate existing road crossing on E creek and remove associated culverts. Re-establish natural creek bank and riparian vegetation. | 1-2 |
| Upgrade drainage infrastructure at west driveway entrance as required to manage drainage along west edge of property. | 1-2 |
| Do not remove ditch/ bioswale along 164 Street at time of driveway improvements. | 1-2 |
| Add washrooms to garage (as required). | 1-5 |
| Explore opportunity for "Framed Views" and "First Flight" public art on site. | 1-5 |

6.2.2 Forest Berry Patches & Homestead Agriculture

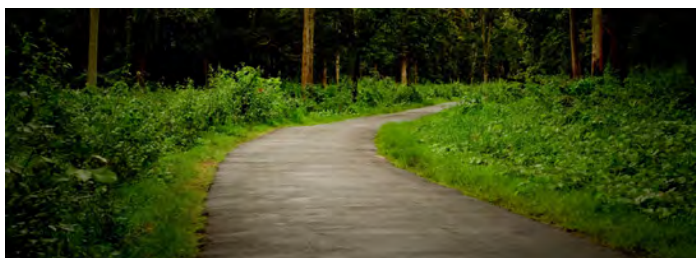
The following management action items indicated and proposed timelines are for the previously noted trails in section 4.4.4.



| Forest Berry Patch Management Action | Timeline (yrs) |
|---|----------------|
| Begin annual pruning and maintenance program for community orchard and berry patch to ensure plant health and vigour. | Ongoing |
| Inventory passive recreational amenities associated with community gathering and cultivation of perennial food crops. | 1-2 |
| Locate berry patches at suitable forest edges adjacent to trail for the “accidental” discovery of trail users. | 1-2 |
| Install interpretive signage at key points of interest. | 1-2 |

6.2.3 Trail System

The following management action items indicated and proposed timelines are for the previously noted forest berries and homestead agriculture features in section 4.4.5.



| Trails Management Action | Timeline (yrs) |
|---|----------------|
| Deactivate all unauthorized trails. | Ongoing |
| Construct and maintain trails as per Master Trail Plan Standards. Trail construction may follow a phased approach. Prioritize trail construction accordingly. | 1-2 |
| Complete a spatial inventory of existing trails and features (bridges, boardwalks, etc.). | 1-2 |
| Construct first segment of Heritage Tree Boardwalk. | 1-2 |
| Install trail wayfinding and interpretation signage at key locations in park. | 1-2 |
| Erect a split rail fence to control access to E creek. The fence should be located above top of bank on either side of the creek and at least two metres from trail. Remove all barbed wire fence from riparian area. | 1-2 |
| Install park gate to manage vehicle access after hours. | 1-2 |
| Designate on-street parking on 164 Street and limited on-site parking at end of park road. Monitor to assess future parking requirements. | 1-2 |
| Construct Salmon Lookout to provide controlled access to E creek and second segment of Heritage Tree Boardwalk to fallen log. | 1-5 |
| Construct proposed pedestrian connections over E Creek to link the park with the community to the south. | 1-5 |

6.3 Species at Risk

Several species and ecological communities at risk have been confirmed, or could potentially exist on Godwin Biodiversity Preserve Park based on the information available from the BC Government's list of species and ecosystems and risk, and the habitat identified during the preliminary environmental assessment. Management actions focus on:

- improving local knowledge of species at risk;
- protection and enhancing existing habitat to support and improve biodiversity; and,
- improving local and regional connectivity.

| Management Action | Timeline (yrs) |
|---|----------------|
| Protect the integrity of natural habitat for species at risk. All future management actions should consider potential impacts to species at risk. | ongoing |
| Conduct inventories for species at risk identified in Phoenix Environmental Assessment. | 1-5 |
| Develop enhancement plans to focus on the improvement of habitat features for species at risk, including riparian areas and old-field. | 1-5 |

6.3.1 Dogs

The City of Surrey has instituted measures to regulate the keeping of dogs within the City (City of Surrey By-law No. 13880). Notwithstanding the provisions contained in the bylaw, the City also recognizes that dogs can cause damage to sensitive habitats and that some of the City's open spaces are not compatible with dogs, whether they are on or off leash. Specifically, dogs can:

- Damage or destroy environmentally sensitive habitats including riparian areas;
- Disturb or predate on other species of wildlife, including ground-nesting birds which may abandon nests; and,
- Alter wildlife behaviour through their presence in an area.

| Management Action | Timeline (yrs) |
|--|----------------|
| Designate Godwin Biodiversity Preserve Park as a dog-free park. | ongoing |
| Enforce dog-free designation through regular bylaw enforcement. | ongoing |
| Install interpretive signage explaining why Godwin Biodiversity Preserve Park is designated as dog-free. | 1-2 |

6.3.2 Invasive Species, Pests, and Diseases

Invasive species include non-native plants, insects, fish and animals that cause negative environmental, economic, or health effects. They often have no natural predators, competition or controls and can spread quickly over a short period of time causing widespread impacts to our natural ecosystems.

Naturally occurring pests (i.e. animals, insects) and diseases can cause changes in tree health, forest structure or ecosystem dynamics. Although pests and diseases are often considered part of healthy, naturally functioning ecosystems, their presence within the urban environment or intensively managed landscapes is not always welcome. Smaller urban parks, for example, have fewer buffers against pests and disease, and outbreaks can be proportionally quite damaging. Insect outbreaks, for example, have the potential to impact large areas of forest. In urban settings, these natural agents of change can have significant impacts to biodiversity and can create unwanted hazards including dead, standing trees and wildfire fuel accumulations.

The preliminary environmental assessment of Godwin Biodiversity Preserve Park did not encounter significant occurrences of invasive plant species, or other pests and diseases. However, a detailed survey was not conducted. The introduction of and establishment of invasive plants through seed dispersal, soil disturbance, and human (recreational) traffic is a continual threat to habitat. Without adequate management, there is a risk invasive species will establish or spread further into the Park and negatively impact native species and ecosystem function.

The best strategy for controlling outbreaks of invasive species, pests and diseases is early detection and control. Species in the early introduction stage are realistic candidates for eradication; therefore, addressing infestations in the short-term will prevent a much more costly and complicated problem in the future. Ongoing management actions in the park will focus on early detection, containment, and removal of invasive plants. Pests and disease outbreaks will be monitored to ensure they do not unduly affect the park’s ecological integrity.

| Management Action | Timeline (yrs) |
|---|----------------|
| Implement invasive species inventory, monitoring and maintenance program. | ongoing |
| Monitor occurrence of yard waste dumping and invasive plant spread within park. | ongoing |
| Continue to co-operate with the Canadian Food Inspection Agency (CFIA) by implementing an invasive insect detection and sampling program in the Park. | ongoing |
| Follow recommendations and prescriptions in City of Surrey Natural Areas Management Plan for management of vegetation. | ongoing |

6.4 Risk Management

Making Godwin Biodiversity Preserve Park safe and enjoyable destination for the community is a top management priority for the City of Surrey. The following five risk categories have been developed to guide management action so that visitors can experience the park safely:

- **Wildfire Risk** is considered low to moderate given fuel composition; A Community Wildfire Prevention Plan (CWPP) was prepared by the City in 2013. A wildfire risk analysis was provided based on the probability of a wildfire occurring and potential consequences to the park and surrounding community. Section 19.1 of Surrey Parks, Recreation and Cultural Facilities Regulation By-law, 1998, No. 13480, Amendment By-law, 2011, No. 17392, prohibiting smoking in City parks except in designated areas, will be strictly enforced.
- **Tree Risk** is considered low given the overall good health of the forest; however, all trees have the potential to become dangerous as they all eventually fall. Assessments for tree risk should only be carried out in areas that have potential threats (probability) and targets (consequence). The most heavily used portions of the Park correspond to the recreation and nature interpretation zones. These areas should be prioritized based on both the potential to contain a target and by the likelihood for tree failure based on forest type (tree species and age).
- **Pond Risk** is considered low-moderate due to deep water and steep banks. Fencing may be considered; however, it may detract somewhat from the experiential nature of the park. Appropriate signage should be posted to clearly warn visitors of potential risks associated with the pond. Swimming is not permitted. Railings will be constructed on pier.
- **Human-wildlife Conflict** is considered low. Conflicts that could potentially arise include damage to park facilities from wildlife activity and negative interactions between humans and wildlife (e.g. coyotes). Beaver presence could potentially affect E creek and the riparian area; however, there has been no recent recorded activity in this area.
- **Climate Change.** Increasing temperature and drying trends could potentially have significant impacts to ecological function of Godwin Biodiversity Preserve Park. As an urban park, increased wildfire risk is a significant concern with drier and warmer conditions. More frequent and intense windstorms, as witnessed in 2006, can also significantly alter forest structure and cause significant damage to buildings and park facilities.

| Management Action | Timeline (yrs) |
|--|----------------|
| Implement measures from Community Wildfire Protection Plan to mitigate risk of wildfire. | ongoing |
| Monitor for imminent tree hazards when conducting regular trail inspections. | ongoing |
| Monitor occurrences of human-wildlife conflict. | ongoing |
| Undertake a hazard tree assessment for Godwin Biodiversity Preserve Park. | 1-2 |
| Undertake appropriate risk management strategies for the pond, including posting of signs. | 1-2 |
| Address expected climate change in habitat enhancement plans. | 1-5 |

6.5 Monitoring and Adaptive Management

The City of Surrey will manage the recreational and natural assets of Godwin Biodiversity Preserve Park as part of its park maintenance operations. Ongoing monitoring, including visitor satisfaction surveys, will be used to inform park management. Adaptive management will ensure that park programming continues to respond effectively to changing conditions and needs over time.

6.5.1 Monitoring Program

At the time of park establishment, environmental features were generally considered to be in good condition with significant opportunities for enhancement. This was due in large part to the continued stewardship of the Godwin Family. These efforts included tree planting and invasive plant management.

Recreational features on site are generally limited, in moderate to good condition, and have some sensitivity to increased use. Ongoing monitoring will play an important role in prioritizing the allocation of resources and implementation of park programs, and ensuring that stewardship and enhancement efforts are in keeping with the overall park vision.

6.5.2 Visitor satisfaction

The ultimate success of the Management Plan will be measured by how well the day-to-day stewardship of park resources achieves park management objectives and supports the overall park vision. Monitoring visitor satisfaction is integral to this process. Visitor use surveys will be used to assess park programming and the performance/success of priority management actions over time, including delivery of service, the quality of amenities, and protection of environmental values.

6.5.3 Continuous improvement and adaptive management

This plan provides a detailed set of implementation recommendations to maintain the health of Godwin Biodiversity Preserve Park and its environmental and recreational values. As local community needs and/or ecosystem management practices evolve, the Management Plan's adaptive management ("continuous improvement") framework will help identify/modify strategies and prioritize park management operations to meet these future needs and objectives.

| Management Action | Timeline (yrs) |
|---|----------------|
| Survey park users to determine adequacy of park services and amenities. | ongoing |
| Re-evaluate the performance indicator tables annually to assess progress towards achieving the optimum state for Park management. | ongoing |
| Update Godwin Biodiversity Preserve Park Management Plan every 10 years. | 5-10 |

6.5.4 Phasing

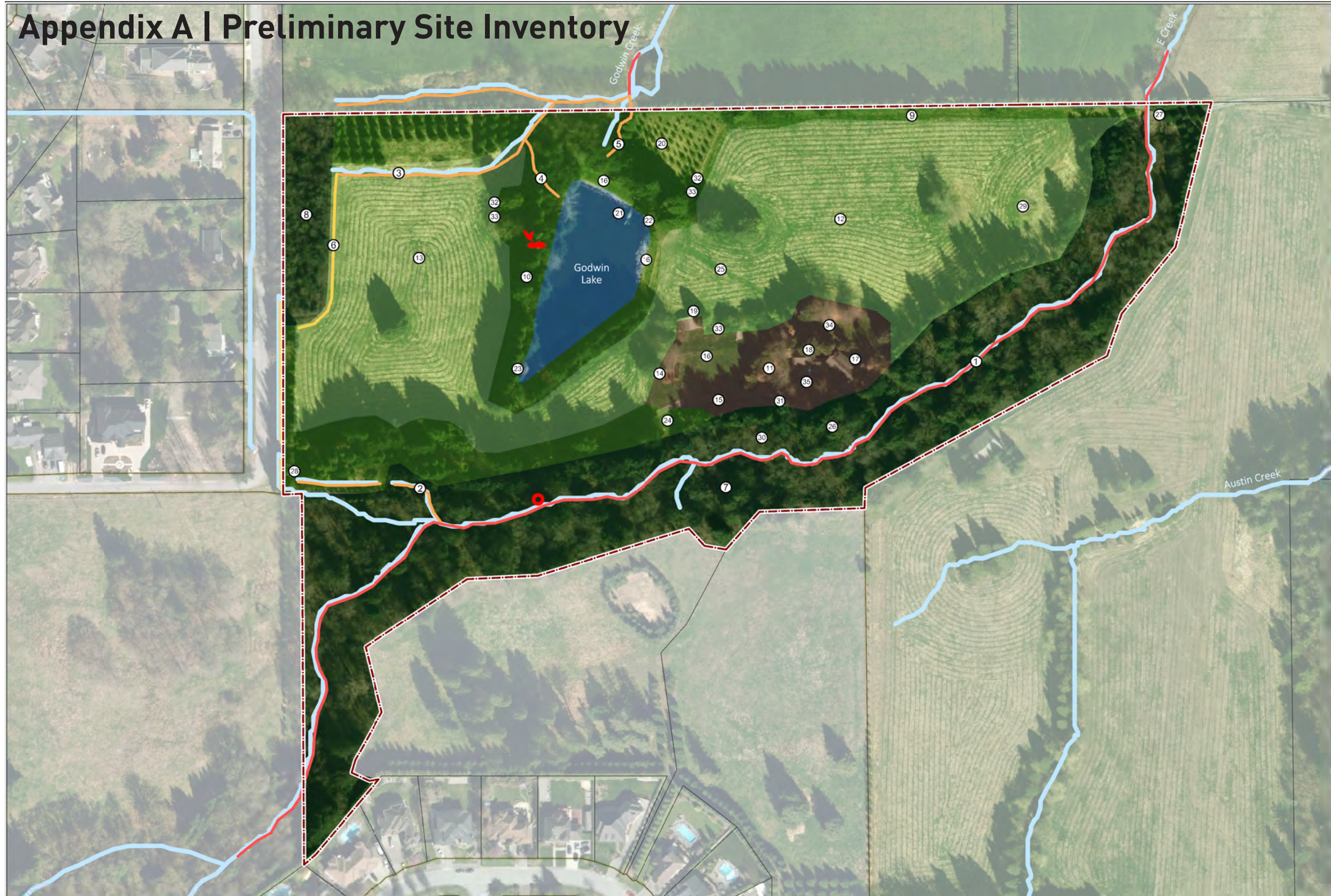
Godwin Biodiversity Preserve Park will be developed over a 3 phase period, the timing of which will be determined by need, resources and capacity.

6.6 Community Involvement, Public Education and Awareness

Godwin Biodiversity Preserve Park has tremendous potential to offer both physical and programmatic linkages that can encourage community stewardship, support education, build awareness of environmental values, and establish connections to nearby parks and schools. Opportunities for neighbourhood residents to get involved include developing nature interpretation programs for students, creek stewardship, environmental monitoring (e.g. bird surveys), fruit and berry picking, and habitat enhancement (bird and bat box building/monitoring, tree planting). Future surveys of user needs will assist in the refinement of management priorities related to programming for community activities.

| Management Action | Timeline (yrs) |
|--|----------------|
| Develop outdoor and nature-based education programs in partnership with local schools, community groups, and agencies. | ongoing |

Appendix A | Preliminary Site Inventory



LEGEND

- Godwin Farm Park Boundary
- Property Boundaries
- Regional Waterways (City of Surrey - COSMOS)

Environmental Report (Phoenix)

- Class A Watercourse
- Class B Watercourse
- Class C Watercourse
- Riparian/Natural Forest
- Managed Forest
- Agricultural/Open Field
- Developed/House & Garden
- Godwin (Constructed) Lake
- H Hawk Nest
- T Heritage Tree (Douglas Fir)

Environmental Features (DHC)

- ① E Creek
- ② E Creek Tributary
- ③ Godwin Creek
- ④ Unnamed Creek 1
- ⑤ Unnamed Creek 2
- ⑥ Ditch 1
- ⑦ E Creek Riparian Corridor
- ⑧ Northwest Forest
- ⑨ Hedgerows
- ⑩ Lake Forest
- ⑪ Residential Forest
- ⑫ East Field
- ⑬ West Field
- ⑭ Blueberry Patch
- ⑮ Fruit Trees
- ⑯ Manicured Grass/Picnic Area
- ⑰ Main House
- ⑱ Garage
- ⑲ Garden Shed
- ⑳ Sequoia Grove/Allee
- ㉑ Docks
- ㉒ Zipline Tower
- ㉓ Bird Houses
- ㉔ Access Road
- ㉕ Field Road
- ㉖ Riparian Trails*
- ㉗ Culverts
- ㉘ Gabions
- ㉙ Septic Field*
- ㉚ Water Wells*
- ㉛ Hydro/Gas*
- ㉜ Fences*
- ㉝ Gates*
- ㉞ Oil Tank
- ㉟ Parking Lot

* Locations/extents to be surveyed

Appendix B | Glossary of Terms

Biodiversity

The variety of plants, animals and other living things within an ecosystem

Biogeoclimatic Ecosystem Classification

A system that groups similar segments of the landscape (ecosystems) into hierarchical categories based on climate, vegetation and site conditions

Carbon sequestration

The process of capturing and storing carbon dioxide from the atmosphere

Fuel type

An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement, or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions

Hazard Trees

Trees with the potential to cause property damage or personal injury due to failure

Tree Canopy

The upper layer of trees formed by one or more tree crowns growing in an area

Large woody debris

The fallen trees and other woody material (generally larger than 10cm diameter) in various stages of decay on the forest floor which provide habitat for a variety of organisms and is a source of soil nutrients

Live crown

The total aboveground portion of a woody plant or tree covered by living branches. The live crown ratio provides a rough but convenient index of the ability of a tree's crown to nourish the remaining part of the tree. Trees with less than 30 percent live crown ratio are typically weak, lack vigor, and have low diameter growth, although this depends very much on the tree's age and species

Dominant trees

Trees with crowns extending above the main canopy level (in even-aged groups), receiving full light from above and partial light from the sides

Ecosystem

A biological community of interacting organisms and their physical environment

Green Infrastructure Network

An interconnected system of open spaces and natural spaces that conserves ecosystems and processes, while providing benefits for people and wildlife

Interface zone

The forested area located adjacent to buildings and infrastructure

Invasive species

Non-native organisms introduced by people to areas outside of their natural range, and that cause environmental or economic harm

Indicator Species

A biological species whose condition or behavior is used to indicate the overall health or changes in an ecosystem (used to locate or determine the environmental effects on other species more difficult to study)

Ladder fuels

Combustible materials (such as lower tree branches, shrubs or structures) that allow fire to climb from the ground into the tree canopy

Site series

A category within the Biogeoclimatic Ecosystem Classification system that describes sites capable of producing similar climax plant communities

Snags

Dead standing trees

Stems per hectare

A measure of biomass; the number or size of a population (tree stems) in relation to some unit of space (one hectare)

Succession

Natural process by which one ecological community (plants and associated organism) is succeeded by another that is better adapted to changing ecological conditions (succession continues until either a climax community is reached or there is a disturbance which sets the process back to an earlier stage)

Suppressed trees

Trees entirely below the main canopy level (in even-aged groups) receiving no direct light either from above or from the sides

Understory

Vegetation layer (typically shrubs and small trees) between the main tree canopy layers and the ground

Wildlife tree

Living or dead trees that provide important or unique wildlife habitat (e.g. cavities or platforms for nesting, perches, etc)