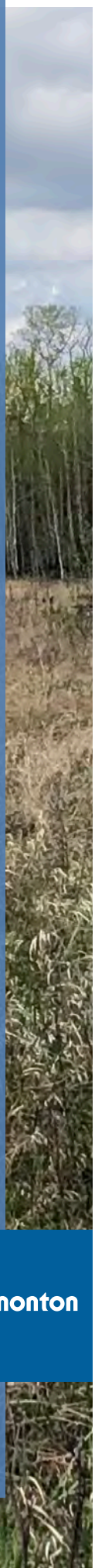
Jan Reimer Park Restoration Concept Design Report



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SHAPE OUR CITY

Edmonton

January 28 2025

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Land Acknowledgment

The City of Edmonton acknowledges the traditional land on which we reside, is in Treaty Six Territory. We would like to thank the diverse Indigenous Peoples whose ancestors' footsteps have marked this territory for centuries, such as nêhiyaw (Nay-hee-yow) / Cree, Dene (Deh-neyh), Anishinaabe (Ah-nish-in-ah-bay) / Saulteaux (So-toe), Nakota Isga (Na-koh-tah ee-ska) / Nakota Sioux (Na-koh-tah sue), and Niitsitapi (Nit-si-tahp-ee) / Blackfoot peoples. We also acknowledge this as the Métis' (May-tee) homeland and the home of one of the largest communities of Inuit south of the 60th parallel. It is a welcoming place for all peoples who come from around the world to share Edmonton as a home. Together we call upon all of our collective, honoured traditions and spirits to work in building a great city for today and future generations.

1.0 Introduction

General Description of the Park, Location and Context

Jan Reimer Park, formerly known as Oleskiw River Valley Park, is located in southwest Edmonton. It is an 82-hectare public park owned and managed by the City of Edmonton. It is located wholly within the North Saskatchewan River Valley (NSRV).

Most of the park is covered by a mixed wood forest that adjoins the North Saskatchewan River which lies to the east and south of the park, and a large open field (meadow) that comprises the park's interior. The park's forested area has been identified in the City of Edmonton Natural Connections Strategic Plan (2009) as part of the River Valley's biodiversity core area, which is an area large enough to support entire populations of different species. There is minimal infrastructure in the park – primarily a paved shared use pathway. There is no vehicular access into the park for visitors.

The Edmonton Country Club and Golf Course occupies the majority of the west boundary of the park; the Oleskiw neighbourhood forms part of the northwest boundary and the Wolf Willow Ravine is located at the park's northern edge. The park is south of the Fort Edmonton footbridge and north of the Terwillegar Park footbridge.

The park's location is centred in the images below.

Park Location Map

Aerial Photo of the Park and Surroundings

Project Purpose & Scope

> The project consists of the naturalization of approximately 30 hectares of parkland at Jan Reimer Park.

Formerly known as Oleskiw River Valley Park as identified in the Oleskiw River Valley Park Master Plan, the goal of the project is to plan, design, and implement the restoration work in the park. This work contributes towards the City's overarching plans and goals to be Greener As We Grow.

The main goal of this project is to implement the naturalization component of the approved Master Plan.

The objective of the project is to develop designs for the re-naturalization and restoration of the disturbed landscape areas in the park incorporating input from the public and stakeholders while aligning with relevant strategic objectives, plans, and policies of the City.

The project includes landscape 'rehabilitation' with the goal of restoring the ecosystem services of native plant communities in the disturbed areas of the site resulting in 'landscape restoration'

The project will be formulated in the design phases identified below.

+ Phase 1A – Concept Design
+ Phase 1B – Preliminary Design
+ Phase 1C – Detailed Design

If funding for implementation of the project becomes available, the project will be implemented in the following phases:

+ Phase 2A – Construction Tendering
+ Phase 2B – Contract Administration (Build)
+ Phase 2C – Post Construction

Engagement with the public and Indigenous Nations and communities has been conducted in the Concept Design phase of the project.

The image below depicts the design phases of the project and highlights the current Concept Design phase of the project.

Pre-Settlement History and Post-Settlement History of the Park

PRE-SETTLEMENT HISTORY

The river valley that the park is located in has provided opportunities for cultural, harvesting and recreational use throughout history. Indigenous knowledge indicate a presence and connection to these lands since time immemorial. The North Saskatchewan River and creeks exposed rocks that could be used for tool making. The unique ecosystem between the northern boreal forest and the great southern plains provided habitat for bison, which was an important food source for the early peoples. The park has had a long history of human use with archaeological findings dating to precontact. Indigenous pre-contact camp sites have been identified along the south boundary and a jump / kill site identified along the steep slope at the west boundary.

By the late 1700s, European settlers were attracted to the Edmonton region because of the abundance of animals that could be used in the fur trade (Pyszczyk, Wein and Noble, 2006) and settled in the area for the purpose of expanding the Hudson Bay Company. Indigenous Peoples in the Edmonton area were essential to the success of the western fur trade, as they scouted, hunted, trapped and traded with the European newcomers. The signing of Treaty 6 (1876) and the adhesion at Fort Edmonton in 1877 also continued this process of developing shared lands and relationships, but with the passing of the Indian Act (1876) and the creation of the reserve system, much of the area was taken up for western settlement.

Over time, and despite these changes, Indigenous Peoples have maintained and nurtured their cultural practices, knowledge systems and ways of life. It is important to acknowledge that the lands on which Edmonton is situated are the Territory of the Treaty 6 First Nations and the Métis Nation of Alberta Zone 4.

The lands were originally occupied by Indigenous Peoples including the Cree, Dene, Blackfoot, Nakota Sioux, Saulteaux, and Métis peoples. Dialogue with Indigenous Peoples remains an ongoing process, and in this project we have engaged with communities to help us understand some of those cultural and historical connections to place, and to Indigenous history and traditional knowledge. (Oleskiw River Valley Park Master Plan)

POST SETTLEMENT HISTORY

In recent history, the park has been used as a golf course and later as a farm for agricultural purposes. In 2007, the City of Edmonton acquired the property.

Edmonton Country Club

The history of the Edmonton Country Club goes back to the 19th century when the club acquired land in 1910. The club obtained 426 acres of land and the initial golf course was created by L.G. White, an American golf professional. In 1913, the lower holes were opened on the southern portion of what is now Jan Reimer Park. Twenty years after the course opened, it was significantly altered with nine new holes opening in 1936. In the late 1940s, Canadian designer, Stanley Thompson, was hired to make significant alterations to the course.

Wolf Willow Farm

Wolf Willow Farm was developed by Curtis and Edith Munson on about 480 acres of land in Oleskiw in 1930 when the golf course was moved upland. The farm produced hay on the open fields and the forest stand to the east of the site was retained. The couple operated the farm until it closed in 1970 (Edmonton Archives).

The Creation of Jan Reimer (formerly Oleskiw River Valley) Park

By 2002, the land was acquired by Centennial Valley Properties, which sought to develop the area. The development plans were halted by public outcry and a City bylaw forbidding development inside the River Valley. This led the City of Edmonton to seek acquisition of the property in 2007. Initially called Oleskiw River Valley Park, it was re named in 2021 to Jan Reimer Park to honour the achievements of the first female mayor of Edmonton, Jan Reimer.

The land in the park has remained relatively unchanged since the property was acquired by the City. Aside from the paved shared use pathway that was constructed in 2017 and natural surface trails that run through the forested area, the park does not contain any amenities or infrastructure.

View of the meadow on the site looking from the south end of the park

Interpretation of aerial photos of the park(1924 to 2023)

A summary of observations by Thurber Engineering from the aerial photo interpretation spanning the period from 1924 to 2023 is included below:

+ The air photo from 1924 indicated golf course holes in the south end of the park. The remainder of the park was an open field with trees adjacent to the river. The slope by the golf course was generally bare of vegetation.
+ By 1943, the south end of the park was no longer used as part of the golf course. An access road to the river and north end of the park was present by 1943 in the current location. No significant changes to the golf course and park were visible in the 1952 and 1957 air photos other than some tree growth on the slope adjacent to the golf course.
+ By 1965, residential development including one residence at the north end of the park had been completed. The park and surrounding area remained relatively unchanged in the 1978 air photos. By 1988, an additional residence had been constructed at the north end of the park. The 1990, 1998, and 2000 air photos showed no significant site changes.
+ By 2010, partial development of the subdivision along Woodward Crescent had been completed with some vacant lots still present and construction of the Fort Edmonton Footbridge across the North Saskatchewan River in progress.
+ The 2014 air photo showed the development of the Woodward Crescent subdivision had generally been completed, the Fort Edmonton footbridge was in service, and some construction work for the Terwillegar Park Footbridge had begun with an access path connected from the north portion of the park to the north end of the Terwillegar Park footbridge location.
+ By 2023, the Terwillegar Park Footbridge was in service, the access path has been upgraded to an asphalt paved path, no other significant changes since 2014 were visible.

The Role of Jan Reimer Park

> Jan Reimer Park plays a vital role in Edmonton's open space network, offering visitors access to nature for low-impact recreation, interpretation, and cultural learning.

The park includes a network of trails, including paved shared-use paths that connect to both Terwillegar Park and Fort Edmonton Park, and natural surface trails that provide a quieter visitor experience, with access to the river and adjacent forest habitat. Renewal of the landscape through restoration and opportunities for community education and stewardship are primary goals for the future of this park. (Ribbon of Green – draft June 2024)

2.0 Executive Summary

Project Background

In 2020, the City approved a Master Plan for Oleskiw River Valley Park that established a 25-year vision and management plan for the park. The park is now known as Jan Reimer Park.

The Master Plan has five 5 Project Pillars:

1. Park Use and Amenities
2. Access and Circulation
3. Natural Asset Management
4. Maintenance, Safety, and Enforcement
5. Atmosphere and Identity

Federal and municipal funding has been secured to advance Project Pillar 3: Natural Asset Management including landscape naturalization. This will involve the landscape naturalization of portions of Jan Reimer Park, to restore the disturbed areas to reflect the natural state of these areas before they were impacted byfarming and other development on the land.

The main goal of this project is to implement the restoration component of the approved Master Plan.

Engagement with the public and Indigenous Nations and communities has been undertaken in this first phase of the project.

SITE LOCATION

Jan Reimer Park is situated in the floodplain of the North Saskatchewan River in West Edmonton and is surrounded by:

+ The Edmonton Golf & Country Club to the west
+ The Oleskiw and Wolf Willow neighbourhoods to the north
+ Wolf Willow Park to the north
+ The North Saskatchewan River along the south and east boundaries

View of the park from the Northwest
Credit: Edmonton Native Plant Society

STRATEGIC ALIGNMENT

The primary guiding document for this project is the Oleskiw River Valley Park Master Plan which was completed in 2020. The following outlines other City strategies, policies and plans that provide a framework for the Concept Plan for restoration of Jan Reimer Park.

City-Wide Policy

+ Breathe: Edmonton's Green Network Strategy – Update
+ ConnectEdmonton and City Plan
+ Development Setbacks From River Valley/ Ravine Crests (Top Of Bank Policy C542A)
+ Natural Area Systems (C-531)
+ Natural Connections Strategic Plan
+ Open Space Policy (C-594)

Operational Policies and Strategies

+ A Greener Edmonton
+ Approach to Community Recreation Facility Planning
+ Biodiversity Action Plan
+ Citywide Natural Area Management Plan
+ Corporate Tree Management Policy
+ Crime Prevention through Environmental Design (CPTED)
+ Environmental Policy C512
+ Live Active Strategy (2016)
+ North Saskatchewan River Valley And Ravine Environmental Review System
+ North Saskatchewan River Area Redevelopment Plan (ARP)
+ North Saskatchewan River Valley Area Redevelopment Plan (Bylaw 7188), 1985, Consolidated 2014
+ Parkland Bylaw (C2202), Consolidated 2003
+ Plan of Action for the Capital Region River Valley Park
+ Public Tree Bylaw
+ Ribbon Of Green
+ River Access Guiding Principles Policy C586, 2015
+ Urban Parks Master Plan

SITE ANALYSIS – OPPORTUNITIES AND CONSTRAINTS

The park consists of a substantial riparian forest along the east and south boundaries, a large open meadow in the centre and steep, mostly vegetated, slopes leading up to Table Lands along the west boundary. The riparian forest is naturally regenerating into the eastern edge of the meadow.

The primary recreation infrastructure in the park is a shared use pathway (SUP) that runs north-south through the west side of the park. The northern end of the SUP connects to the river footbridge to Fort Edmonton. The southern end of the SUP connects to the river footbridge to Terwillegar Park.

There is a network of informal nature trails through the riparian forest on the east side of the park. These connect to the SUP at the north and south ends of the meadow. They also connect to the west end of the Fort Edmonton footbridge.

Constraints related to use, maintenance or construction in the park include:

+ there is no access for private vehicles into the park
+ there is limited access for maintenance or construction vehicles. Limited access is possible via the 2 river footbridges or via a gravel trail from Woodward Crescent at the northwest corner of the park
+ there is no potable water supply to the park
+ there is no electrical service to the park
+ 3 areas of the park have identified historic resources related to the use of park by indigenous groups.

CONCEPT PLAN FOR RESTORATION

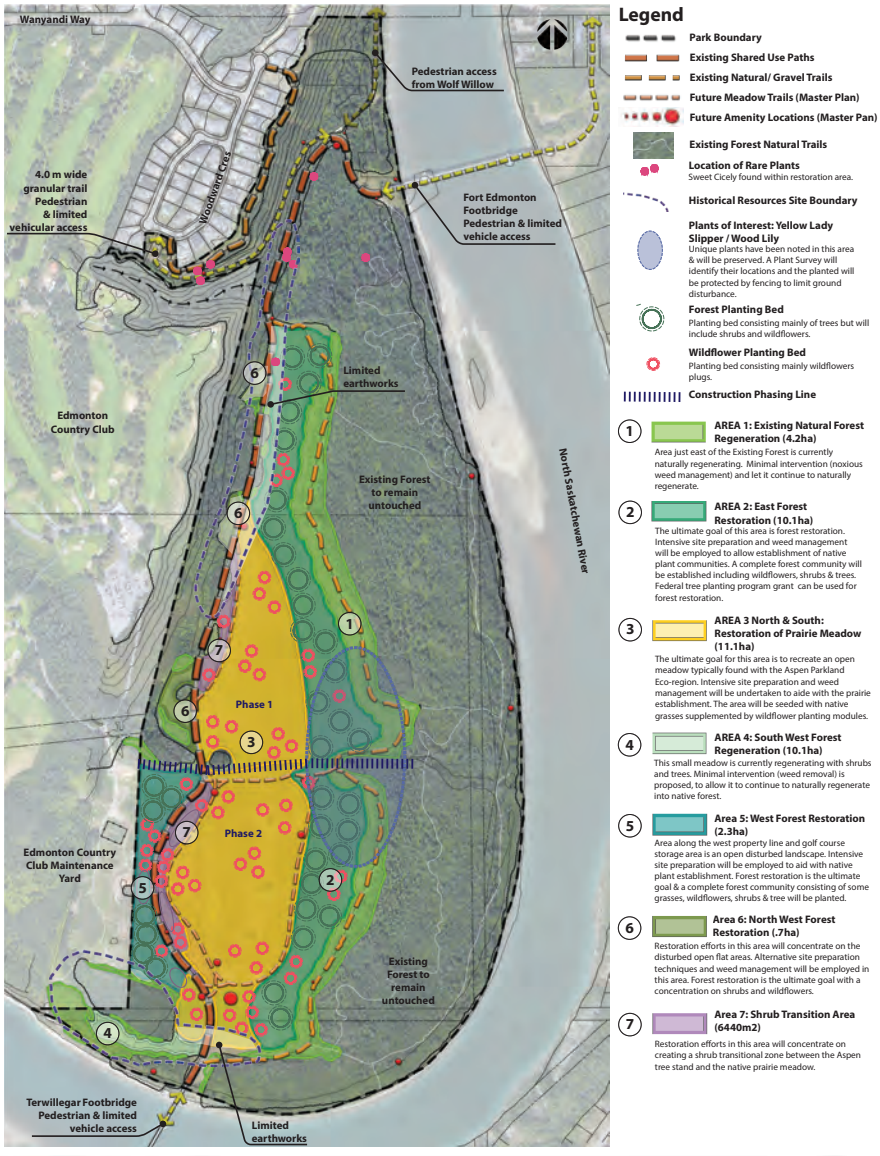
Two concept design options for the park's landscape restoration were prepared based on the site analysis and investigation into site preparation, replanting and weed management options.

The two options have similar elements as outlined below and in the Concept Options Comparison Table in Appendix F.

Seven distinct areas of restoration were identified in the concept designs. A total of approximately 30 hectares of restoration, including passive naturalization, is proposed in the draft plan. In both concept plan options, all of the riparian forest along the eastern and northern portions of the park would be retained unchanged. Similarly, the mixed wood forest on the western and north-western slopes of the park would be retained unchanged. This includes retention, but management, of groupings of caragana on the steep north western slopes.

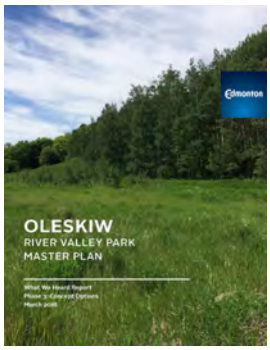
IMPLEMENTATION

The proposed implementation approach for the project is to implement the project in 2 phases. This will broadly be based on constructing the north portion of the site first to accommodate construction access from the Country Club storage yard adjoining the west edge of the site.



3.0 Strategic Alignment – Guiding City Policies & Plans

The following outlines the City strategies that provide a framework for the Concept Plan for restroration of Jan Reimer Park.



OLESKIW (NOW JAN REIMER) RIVER VALLEY PARK MASTER PLAN

The Oleskiw (now Jan Reimer) River Valley Park Master Plan is a 25-year vision and management plan for the Park, building on existing plans, policies and initiatives while identifying public needs and priorities. The Master Plan provides direction for environmental management and includes recommendations for amenities and park programming. The Master Plan was developed using a balanced planning approach, integrating direction from public input, site analysis and City policy.

An initial inventory and analysis of Oleskiw River Valley (Jan Reimer) Park was completed in the summer of 2016. Environmental studies done in support of the Master Plan included a preliminary geotechnical investigation, an Environmental Overview (EO) and a desktop soil assessment. An Environmental Impact Assessment and Site Location Study were prepared for the City in relation to the adoption of the Park Master Plan.

Vision and Objectives of the Park Master Plan

The Vision Statement for Oleskiw River Valley (Jan Reimer) Park is:

> *The Oleskiw River Valley Park is a crucial link in Edmonton's open space network, contributing to increased biodiversity in the River Valley and providing visitors with access to nature for low impact recreation, interpretation and cultural learning. Minimal amenities support a diverse group of park users, inviting them to linger in the River Valley and witness the active renewal of the landscape.*

Complementary to the vision, the four main objectives of the Oleskiw River Valley Park Master Plan are to:

+ Increase biodiversity in the park.
+ Protect the park's natural character and cultural heritage.
+ Promote opportunities for a variety of park visitors to experience nature.
+ Introduce educational and stewardship opportunities for the broader community.

Master Plan Recommendations Most Relevant to this Project

The Master Plan recommendations that have the most relevance to the landscape naturalization of the park are listed below.

Recommendation #18: Manage and Conserve Existing Natural Assets.

Vegetation: The plan provides for maintaining large portions of the open field located in the park's interior. Invasive species in this area should be addressed through a re-naturalization plan (see Recommendation #21).

Recommendation #19: Collaborate with Indigenous Communities in the Management of Natural Assets.

Indigenous communities should be included in continuous collaboration and dialogue about managing natural assets in the park.

Recommendation #20: Create a Forested Buffer Along the West Edge of the Park.

Currently, the area to the west of the paved, multi-use trail is open with views into the adjacent golf course property. The Master Plan recommends planting the area to create a forested buffer as part of the re-naturalization plan.

Recommendation #21: Re-naturalize Disturbed Areas in the Park.

Although the park is considered by many to be natural, the spread of invasive species and weeds in the park is one of the major challenges identified by the City and stakeholders.

Recommendation #22: Develop a Re-naturalization Plan that Outlines the Implementation, Maintenance and Monitoring of Re-Naturalization Efforts in the Park.

A re-naturalization plan that is informed by a qualified biologist is advised to provide direction on implementing this recommendation. It should provide the foundation for the development of construction drawings and documents for project implementation.

CONNECTEDMONTON AND CITY PLAN

ConnectEdmonton is Edmonton's Strategic Plan for 2019-2028. It sets the direction for our future by providing Edmonton's vision, guiding principle, four 10-year strategic goals and indicators. The City Plan is Edmonton's Municipal Development Plan and Transportation Master Plan guiding long-term land use and development in Edmonton to a population of 2 million.

CITY-WIDE POLICY

The following selection of policies apply to the City of Edmonton as a whole but also contain important direction for future parks and open spaces system planning.

Development Setbacks from River Valley/ Ravine Crests (C-542A)

This policy establishes appropriate setbacks from the river valley and ravines to preserve views, optimize public access and protect private and public property from hazardous slopes.

Open Space Policy (C-594)

This policy commits the City to evidence-based, collaborative planning in service of an integrated, sustainable, vibrant, and multi-functional green network.

Natural Area Systems (C-531)

This policy recognizes the importance of balancing environmental considerations with economic and social considerations by conserving, protecting, and restoring Edmonton's natural areas as an integrated and connected system throughout the city.

Breathe: Edmonton's Green Network Plan

Breathe: Edmonton's Green Network Plan provides the framework for the Ribbon of Green. Breathe is a strategy to ensure that each neighbourhood is supported by an accessible network of parks and open spaces as the city grows. Breathe will help to plan a healthy city by encouraging connected and integrated open spaces.

Ribbon of Green update (draft June 2024)

The Ribbon of Green provides strategic direction to guide the protection and responsible use of Edmonton's River Valley and Ravine System to Edmonton's 1.5 million population horizon. As the City of Edmonton grows, the System faces increasing pressure from urban development and use. The Ribbon of Green Plan helps support and sustain an interconnected System that meets the needs of the environment while providing diverse recreational and cultural experiences for those who work, play and/or live in Edmonton. The Plan provides direction to the acquisition, management, programming, and development of publicly owned land within the Plans study area.

Specifically, the Ribbon of Green:

+ Contains policy direction to guide decision making, further planning, monitoring and management of the System.
+ Informs collaboration, public engagement and partnerships with communities, institutions and other orders of government.
+ Defines and applies Land Management Classifications to outline the protection and level of programming appropriate for different locations within the System.
+ Provides program direction to inform future site-specific planning.

Natural Connections Strategic Plan

Edmonton's Natural Connections Strategic Plan establishes a coordinated direction for the City to conserve an ecologically functional network of natural areas in Edmonton.

Climate Resilient Edmonton: Adaptation Strategy and Action Plan

Climate Resilient Edmonton guides the City in responding to the impacts of climate change and protecting the community, infrastructure, and services from its impacts.

North Saskatchewan River Area Redevelopment Plan (NSRV ARP)

Also known as the River Valley Bylaw, the River Valley ARP provides the regulatory framework, the standards and rules that guide the evaluation of individual projects and development that is proposed for the River Valley. The City is currently updating the ARP so that it aligns with the City's strategic direction, reflects Edmonton's current planning and development context, and strengthens the City's ability to protect and preserve environmentally sensitive areas.

OPERATIONAL POLICIES AND STRATEGIES

The following policies guide specific amenities, uses, practices, and activities within Edmonton's open spaces.

+ Live Active Strategy (2016): The Strategy provides a road map for supporting the active recreational and sporting needs of all Edmontonians.
+ Parkland Bylaw (2202): This bylaw regulates the conduct and activities of people on City-owned or operated parkland in order to promote the safe, enjoyable, and reasonable use of parks and to protect and preserve natural ecosystems.
+ Corporate Tree Management Policy: This policy protects the tree canopy on City property by guiding the development and maintenance of the City's tree inventory, providing a tree reserve account for new planting, and coordinating all City tree planting programs. The City of Edmonton Bylaw 18825 – Public Tree Bylaw – is related to this policy.
+ Plan of Action for the Capital Region River Valley Park: Developed by the River Valley Alliance, this plan is a 25-year vision for a continuous and connected North Saskatchewan River Valley Park, and outlines specific improvements, amenities, and features.
+ City-wide Natural Area Management Plan (2014): This Plan sets out objectives and strategies for managing and restoring the Natural Areas owned by the City of Edmonton
+ Corporate Tree Policy (including Public Tree Bylaw).
+ River Access Guiding Principles Policy (C-586): This policy ensures that river access and activities are provided and managed in a responsible, orderly, equitable, and environmentally appropriate way.
+ Approach to Community Recreation Facility Planning: The Approach outlines the long-term strategic direction for the provision of recreation facilities, amenities and services, and a means to identify recreation priorities into the future.
+ A Greener Edmonton: This plan focuses on urban restoration projects within Edmonton's city limits. It offers a set of tools and strategic recommendations to eventually guide and prioritize projects throughout all 15 planning districts. A Greener Edmonton aims to help City of Edmonton staff determine which sites within the city should be restored and guide them through the restoration process.
+ Design and Construction Standards – Volume 5 Landscaping (March 2021 Edition): These standards provide details related to landscape restoration.

All lands associated with Jan Reimer Park fall within the boundaries of the City of Edmonton's Bylaw 7188: North Saskatchewan River Area Redevelopment Plan (NSR ARP).

4.0 Existing Conditions and Site Analysis

This chapter outlines the existing biophysical conditions of the site based on previous investigations of the site's geology, flora and fauna as well as the small amount of infrastructure changes to the park including park access points. It also identifies existing park uses and provides an analysis of existing conditions in relation to the proposed landscape restoration for the park.

Land Ownership and Land Zoning

All lands within Jan Reimer Park are owned by the City of Edmonton with the exception of the bed and shore of the North Saskatchewan River (NSR), which is owned by the Province of Alberta. Most lands within the Park are zoned Metropolitan Recreation (Zone A). Zone A preserves natural areas and parkland along the NSR, creeks, ravines and other designated areas for active and passive recreation and environmental protection, in conformance with the NSRV ARP.

A small portion of the park that connects to Woodward Crescent at the top of bank is located in Zone RF1 (Single Detached Residential Zone).

The permitted uses in this zone include: garden suites, limited group homes, minor home-based business, secondary suites and single detached housing.

Portions of the Park are located within the City's Flood Protection Overlay. These lands are largely restricted to the immediate banks of the NSR and associated deciduous forest. Aside from the paved SUP and the natural trails that occupy the forested area, the park does not contain any inrastructure that the Flood Overlay Protection would overlap.

The park is composed of the following land parcels which are all owned by the City of Edmonton.

Plan Reference	Lot, Block/Parcel and Plan #s
1	Lot 34 E.R., block 21, Plan 052 3967
2	Lot 46 M.R., block 21, Plan 052 3967
3	Lot 48 M.R., block 21, Plan 052 3967
4	Lot 49 E.R., block 21, Plan 052 3967
5, 8, 9	Lots A, B and C inclusive, Plan 5252
6	S.E. & S.W. 1/4 sec. 15, twp. 52, rge. 25, W.4 M.
7	Lot 67, block 21, Plan 052 3991
10	N.E. 1/4 sec. 10, twp. 52, rge. 25, W.4 M.
11	Lot 69, block 21, Plan 062 1603,

Jan Reimer Park

September 2023

Background Plans and Studies

In addition to the Oleskiw River Valley Park Master Plan, the following background documents are valuable references for the design of the landscape restoration for Jan Reimer park.

PREVIOUS GEOTECHNICAL INVESTIGATIONS

The following geotechnical investigations have been conducted for the park area between 2000 and 2023:

+ Centennial Valley Neighbourhood Design Report (Stantec 2003)
+ Terwillegar Park Footbridge Trails Geotechnical Investigation (Thurber 2014)
+ Dawson Park, Kinnard Ravine and Oleskiw Park Master Plans Geotechnical Assessment (Thurber 2017)

PREVIOUS ENVIRONMENTAL INVESTIGATIONS

The following investigations were conducted to inform the 2020 Master Plan for the park.

+ Environmental Overview (Basin Environmental Ltd. – 2016)
+ Environmental Sensitivities Report – (2017)
+ Oleskiw River Valley Park Master Plan EIA (Basin Environmental Ltd. – 2019)

PREVIOUS HISTORICAL RESOURCES STUDIES

Historical resources investigations of the park assessed by Alberta Culture and Tourism have identified pre-settlement historical sites within the park boundary. The Historical Resources Act Requirements of December 19, 2018 associated with the preparation of the Oleskiw River Valley Park Master Plan are summarized below:

ARCHAEOLOGICAL RESOURCES

Site	Historic Resources Value (HRV)	Site Description	Conditions/Approval	Location in the Park
FiPj-123	4	precontact campsite	The proponent's consulting archaeologist must confirm the relationship between this site and the proposed development footprint.	Adjoining watercourse on west side of the park.
FiPj-124	4	precontact multi-component campsite	The proponent's consulting archaeologist must confirm the relationship between this site and the proposed development footprint.	Southwest corner of the park.
FiPj-125	4	precontact kill site	The proponent's consulting archaeologist must confirm the relationship between this site and the proposed development footprint.	Slopes in northwest corner of the park.
FiPj-126	4	precontact campsite	The proponent's consulting archaeologist must confirm the relationship between this site and the proposed development footprint.	Northwest corner of the site near gravel access.

Recent Adjoining Projects

There are no current significant projects adjoining the park.

The most substantial projects adjoining the park in recent history include the construction of the footbridges across the river into Jan Reimer Park from Fort Edmonton and from Terwillegar Park. Both projects used parts of Jan Reimer Park for staging areas for equipment and materials storage during the bridge construction. Areas at the south and north ends of the park's meadow show evidence of the disturbance caused by these staging areas. This primarily included modified grading. Both disturbed areas were restored as naturalized grass areas. Naturalized regrowth of native trees and shrubs is less evident in these areas due to the construction disturbance.

FORT EDMONTON FOOTBRIDGE PROJECT

This footbridge crosses the North Saskatchewan River upstream of Fort Edmonton Park and provides a connection between the new multi-use Trans Canada Trail around Fort Edmonton Park and the north end of Jan Reimer Park. The Fort Edmonton Footbridge enhanced Edmonton's extensive trail system by creating a key link between the east and west sides of the river. The footbridge was constructed between 2008 – 2010. The north meadow area in Jan Reimer Park was used as a staging area for the bridge construction.

TERWILLEGAR PARK FOOTBRIDGE PROJECT

This 262 metre long footbridge links Terwillegar Park on the south side of the river to Jan Reimer Park on the north side of the river. The project included construction of approximately 3.5 kilometres of trails to connect to the park system on both sides of the river. Construction of the footbridge and associated trail links was completed in October 2016.

EFFECTS OF THE FOOTBRIDGE PROJECTS

The construction of the footbridges as well as the shared use pathway linking the two through Jan Reimer Park provided easy access for pedestrians and cyclists to and through the park. Trailheads nearby the footbridges across the river from Jan Reimer Park mean that numerous river valley visitors choose this area as a starting point for their walk, hike or cycling journey. The footbridge connections to the park have substantially improved accessibility into Jan Reimer Park, increased its visitation and made it more visible to river valley visitors. Before the construction of the footbridges, access to Jan Reimer Park was quite limited.

Fort Edmonton Footbridge

Terwillegar Park Footbridge

Approach toTerwillegar Park Footbridge from Jan Reimer Park

Existing Site Conditions

> Much of the biophysical information in the sections below has been extracted from the Oleskiw River Valley Park Master Plan Environmental Impact Assessment (EIA) prepared by Basin Environmental in March 2019.

The site analysis plan on the following page identifies the location of many of the elements identified in this section.

UTILITY INFRASTRUCTURE / SERVICING

Jan Reimer Park is not serviced with water, power or sewer connections and contains no utilities.

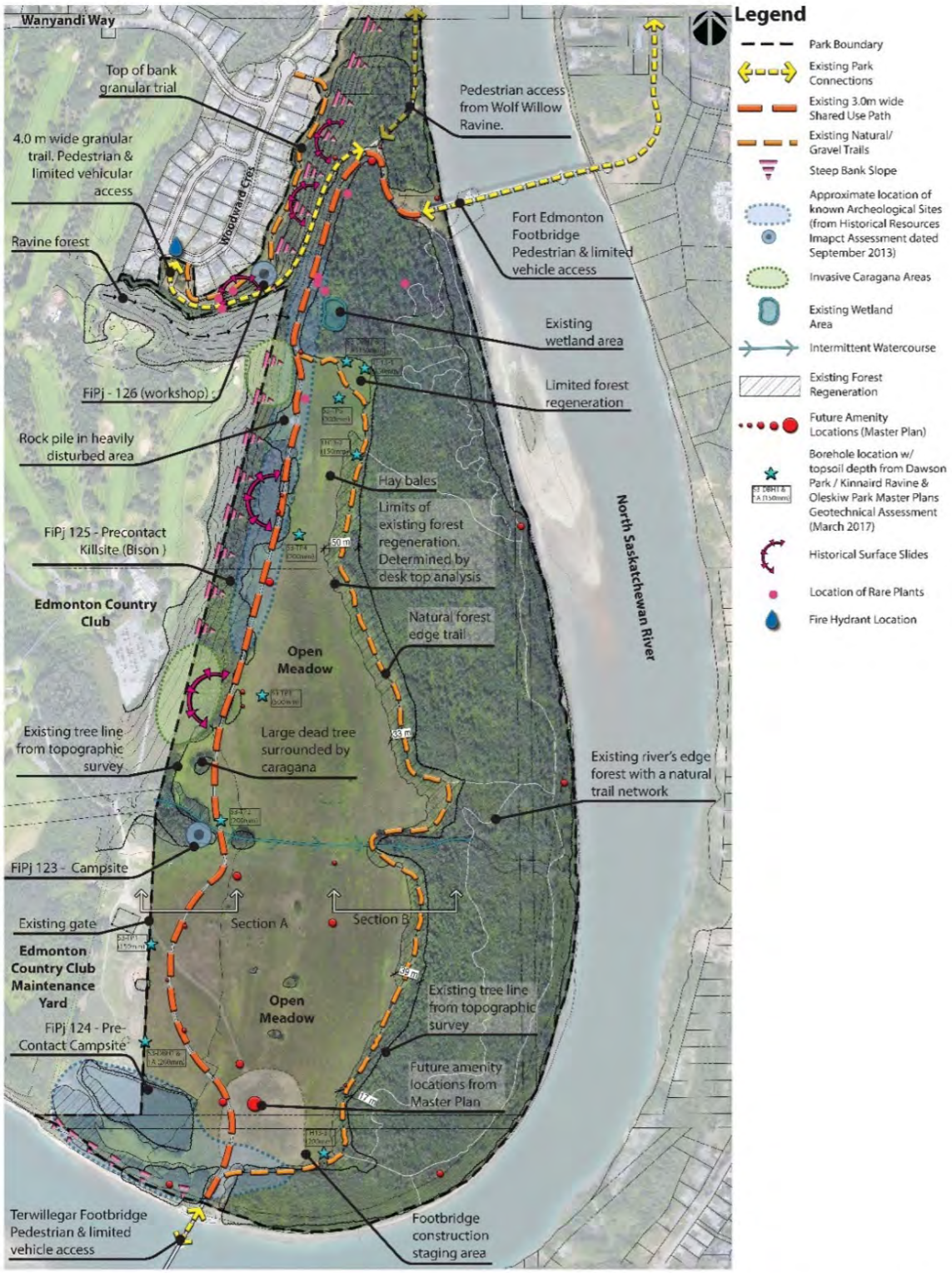
ENVIRONMENT AND LANDSCAPE

Environmental Sensitivity

Jan Reimer Park is located within the Central Parkland Natural Subregion of the Parkland Natural Region. The landscape is characterized by undulating till plains and hummocky uplands, eolian deposits, aspen forests, and prairie vegetation (Natural Resources Committee 2006).

As part of the Master Plan for the park, an Environmental Sensitivities Map was prepared. Those sensitivity levels are detailed below:

+ Higher – Areas should be restricted for the protection of natural resources.
+ Moderate – The interaction of natural resources and people should be managed to prevent unnecessary environmental impacts.
+ Lower – Areas that have experienced the most ecological degradation and, therefore, are suitable for many types of park activities if increased active use is desired. However, degraded areas also have the greatest potential for ecological restoration. Restoration efforts should be explored whenever possible.



ARCADIS | **Jan Reimer Park - Naturalization**
Site Analysis

May 2024

The majority of lands within the Park are considered to be low or moderate sensitivity. While there is limited infrastructure within the park, historical land disturbance (i.e., agricultural activities) has degraded habitat potential across large areas. Areas of lower sensitivity include the open field throughout the central and western portions of the park and lands immediately adjacent to the main paved trail.

Lands dominated by natural vegetation along the eastern portion of the park and steeper vegetated slopes along the north western portions are largely rated as moderate sensitivity with some higher sensitivity areas identified along the top-of-bank and immediately adjacent to the North Saskatchewan River. This is largely owing to the presence of dense vegetation, occasional steep slopes and the absence of park infrastructure. (Oleskiw EIA, Basin, 2019).

Soils

The major soil group in Jan Reimer Park site is Black Chernozemic. Local variations in topography, vegetation and weather patterns can produce minor occurrences of other soils (likely Regosols). Moving from the immediate banks of the NSR on the eastern and southern edges of the park, it is expected there are poorly developed, gravelly and sandy Regosolic soils.

This soil type would form on parent material of fluvial origin (deposited by the river) or colluvial origin (deposited by gravity from upper, steeper slopes) (Kathol and MacPherson, 1975). North and west from the NSR, it is likely that clay loams to loamy sand textured Black Chernozemic soils are present across the park.

Topsoil depths and composition are not clearly described in the background documents available for this project. Topsoil testing may be required to better inform planting and restoration methods for the park.

Landform, Slope Stability and Runoff Potential

The valley slopes at the west edge of the park are generally sloped at between 21 and 34 degrees and are approximately 35 m to 40 m in height. The elevation of the upland plateau is at an average of about 665 m, and the low level terrace land range in elevation from about 626 m to 630 m and dip slightly towards the North Saskatchewan River. (Thurber, 2024)

Western slopes of the park have been identified as having excessive erosion, including evidence of landslides and erosion channels, likely resulting from current and past land disturbances.

In general, runoff potential would be expected to be higher on more sloping terrain and where soils of low permeability are present at ground surface. Infiltration capacity is greatest in pervious gravelly and sandy soils. The park terrace has a low to moderate runoff potential, while the valley slopes have a high runoff potential. Infiltration capacity is considered moderate in the park terrace and low along the valley slopes (Thurber 2017; Appendix A).

Surface Water Drainage

Two unnamed watercourses, both tributary to the NSR, are located within the Park Both watercourses were determined to be intermittent in nature and were identified as watercourse 1 (WC1) and watercourse 2 (WC2). WC1 is located in a forested wetland area at the north end of the park. WC2 is currently blocked at the west edge of the park within the golf club lands.

A seasonal graminoid marsh has been identified in the forest area in the north portion of the park.

Generally, surface water drainage in the park flows from the upper slopes along the west edge of the park towards the river on the east and south edges of the park. There are no defined watercourses within the area proposed for landscape restoration.

Flooding

Much of the eastern portion of Jan Reimer Park is situated within the 1:100-year flood level. Bank erosion is evident throughout the reach of the NSR that flows beside the Park, with steep banks approximately 2-3 m in height. The banks are well vegetated, which aids in bank stabilization.

Potential flooding has been identified as a potential risk to the project, however, measures to mitigate that risk are limited. One measure that has been considered is to limit the area of landscape that is disturbed as part of restoration works so that if flooding of the site does occur, soil loss is minimized.

Vegetation

Local vegetation within Oleskiw River Valley Park is predominantly a ruderal grassland, consisting of predominantly ruderal, non-native grasses, herbs and forbs, and a deciduous forest dominated by a canopy of trembling aspen and sub-canopy of rose (Rosa spp.), chokecherry (Prunus virginiana) and buckbrush (Ceanothus cuneatus).

Three main vegetation communities were identified during site reconnaissance and through a desktop analysis: deciduous forest, manicured and ruderal grassland . Descriptions for each vegetation community are provided in the following sections.

Deciduous Forest

The deciduous forest community is the largest community in Oleskiw River Valley Park. This community parallels the NSR and is found along much of the eastern portion of the Park. Vegetation within the deciduous forest community is almost entirely dominated by deciduous tree stands, and includes riparian habitat adjacent to the NSR. Trembling aspen is the dominant canopy species with white spruce (Picea glauca) and Manitoba maple (Acer negundo) in trace amounts throughout.

The understory is composed of typical parkland species such as Saskatoon (Amelanchier alnifolia), wild sarsaparilla (Aralia nudicaulis) and wild rose (Rosa acicularis).

Ruderal Grassland

The ruderal grassland community is situated centrally within the park. This area has undergone significant historical disturbance which includes clearing of trees and historical agricultural practices. This area is largely comprised of non-native species, including agronomic grasses with a high predominance of various weed and invasive species scattered throughout. Several noxious weed occurrences were documented within this community.

Some trees, including Blue Spruce, have been planted in the meadow.

Manicured

Manicured landscape areas throughout the Park are mostly situated on lands surrounding bridges and various residential access points (Woodward Crescent). Linear strips of manicured vegetation also parallel the main paved trail. These areas consist primarily of mowed turf and planted trees such as balsam poplar (Populus balsamifera), cottonwood (Populus deltoides), Manitoba maple, and white spruce.

Rare Plants

A Rare Plant Survey was conducted for the Park's Master Plan and 5 rare plant species were identified in the park. The majority are found in areas of the park not slated for restoration, the north forest area and at the NW the perimeter, along the path leading up to Woodward Crescent. Sweet Cicely (Myrrhis odorata) was identified mainly along the shared use path and a small portion is within the disturbed grassland. These Sweet Cicely communities will be protected, and minimal ground disturbance will be enforced.

Weeds and invasive exotic species

Weeds and invasive exotic species are found throughout the site and not limited to a certain vegetation community. The highest numbers of invasive species are found along the west boundary top of bank, at the park's interface with the residential neighbourhood and golf course, along trails and in the disturbed grassland. The deciduous forest contains the lowest number of invasive exotic weed species.

PARK ACCESS POINTS AND INTERNAL CIRCULATION

The park has 4 main public access points, none of which allow for private vehicles and provide limited access (width and weight) for maintenance or construction vehicles. The access points are:

+ From Woodward Crescent at the northwest corner of the park. This is a gravel trail with substantial longitudinal slope. It is not accessible.
+ From the Fort Edmonton footbridge at the northeast corner of the park.
+ From Wolf Willow ravine. This is a paved shared use pathway. It connects to the Fort Edmonton footbridge and the Woodward Crescent gravel trail. The paved SUP continues south into the park
+ From the Terwillegar Park footbridge at the south end of the park.

The east boundary of the park is defined by the river. It is possible to access this edge of the park by watercraft, however, this would be rare.

The west boundary of the park adjoining the Country Club is mostly fenced. There is a gate between the Country Club storage area and the park that was used for vehicular access for the construction of the Terwillegar Park footbridge. Access through this gate is controlled by the Country Club and can only be used with their approval.

The closest public parking lot is located in Terwillegar Park, approximately 800 m from the southern end of Jan Reimer Park.

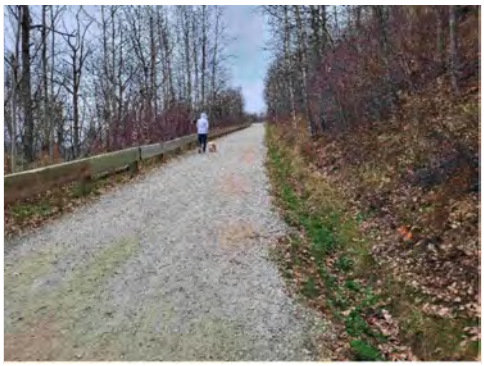
Internal Circulation

There are no roadways within the park. Access through the park is limited to:

+ A shared use pathway (SUP) that runs between the 2 footbridges and extends north into Wolf Willow Ravine
+ Informal (not constructed) nature trails that are mostly located within, or at the edges of, the riparian forest on the east side of the park.

Shared use pathway (SUP) through forest at north end of the park

SUP along the west edge of the meadow through the central portion of the park



Gravel access trail from Woodward Crescent and junction of the trail with the paved SUP

Nature trail at the east edge of the meadow

EXISTING PARK USES AND USERS

Existing uses of the park include:

+ Walking and cycling along the shared use pathway
+ Walking and 'mountain-biking' along the nature trails along the edges of, and through, the riparian forest on the east side of the site
+ Nature observation

Other than at the approaches to the two footbridges, there are currently no facilities in the park (benches, tables, etc.) that would encourage visitors to linger in the park.

INVESTIGATION OF HISTORICAL RESOURCES STUDIES

Since an Historical Resources application (HRA) was submitted in 2018 as a result of the Master Plan prepared for the park, our understanding is that there is no need to submit a new HR application at this time. The 2018 HRA resulted in requirements to complete an impact assessment for archaeology and paleontology, which can be addressed once the project design is complete.

Analysis

The following sections include an analysis of existing park conditions and background documents that relate to the proposed restoration in the park.

REVIEW OF ALTERNATE MEANS OF CONSTRUCTION SITE ACCESS

Arcadis investigated the width and loading limits of the 2 footbridges that connect to the park.

The Fort Edmonton Footbridge provides potential for a maintenance vehicle, maximum 80 kN (8,157.73 kg) gross load.

The Terwillegar Park Foot Bridge provides potential for a maintenance vehicle, maximum 80 kN (8,157.73 kg) gross load and potential for use by an emergency medical services vehicle, maximum 100 kN (10,200 kg) gross load.

The limitations of the gravel access from Woodward Crescent were also investigated along with the potential size limits (widths) of equipment that would likely be needed to transport materials to and from the site as well as cultivate, seed, plant or potentially water the site. There is potential for use by a service truck (1 tonne pickup truck) maximum 3.1 m width to avoid damage to the swale adjacent to the trail.

Some alternative construction methodologies were investigated based on access limitations and associated smaller vehicles.

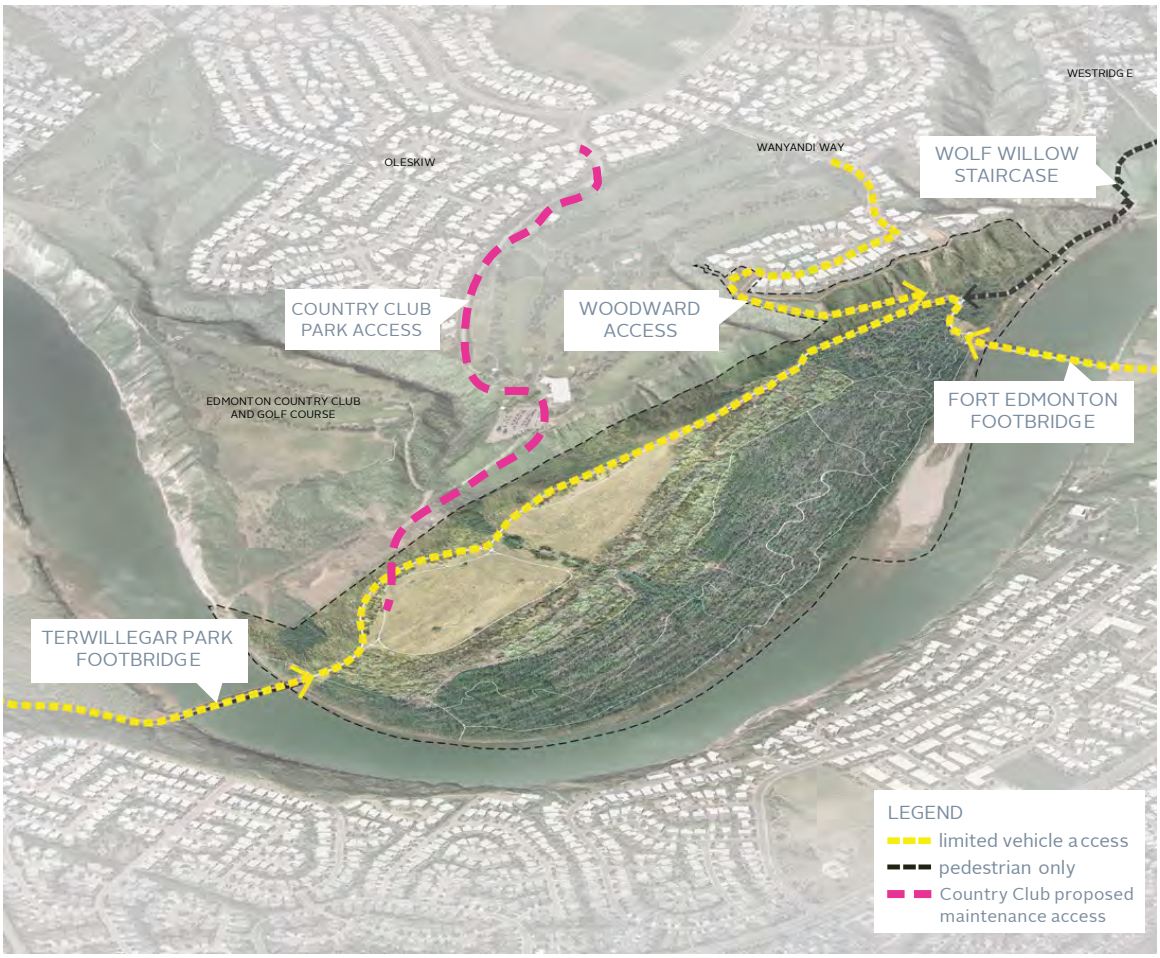


Figure 20 Pedestrian and Limited City Vehicle Access Points

Implications of restricted vehicular access and how it might affect the design approach

Due to the limitations to the size of the equipment that could be brought onto the site, Associated Environmental investigated the potential size limits (widths) of equipment that would likely be needed to transport materials to and from the site as well as cultivate, seed, plant or potentially water the site. We specifically investigated the use of the smallest possible site preparation equipment such as soil inversion ploughs. Moldboard and square ploughs were considered both with or without skimmers, as well as applicable towing machines. The smallest width of cut was 2.3 m with a 5-bottom option requiring min.130hp and weighing 1,700 kg.

REVIEW OF ALTERNATE PLANT WATERING METHODS, COSTS AND REGULATORY REQUIREMENTS/APPROVALS

Since there isn't currently a service for potable water in the park, and this project does not plan to add a water service, investigation of alternative supplies of water for irrigation were necessary.

To be able to maintain the restoration plantings throughout the establishment period (considering that typical maintenance and watering after planting is 2 years), the feasibility of alternative water supply methods was investigated along with their regulatory approval requirements, and projected costs. Preliminary feasibility was investigated for:

+ Diverting surface water from the North Saskatchewan River
+ Bore holes/wells or
+ Connecting to existing City water supply sources (fire hydrants at Woodward Crescent) via extended firehose lines.
+ Obtaining a temporary water supply from the Country Club.

Diverting Water from the North Saskatchewan River

In regards to diverting water from the North Saskatchewan River, depending on the diversion method and where the pump is located, permitting may be required under the Public Lands Act (Temporary Field Authorization). These can generally be issued for 2 years but would require renewal for the full duration. There are considerations as well under the Fisheries Act, but this may follow the Interim Code of Practice: end-of-pipe fish protection screens for small water intakes in fresh water. If it meets the COP, a notification would be required.

Bore Hole (Well)

Investigations into the possibility of a bore hole or well identified that water well drilling would have a substantial construction cost in addition to required approvals. Additional information from a hydrogeology standpoint may also be required to confirm that the groundwater source would be sufficient and of a suitable quality. Due to these factors, this is not a preferred option to consider further but could be revisited if other options do not seem achievable.

Connecting Fire Hoses to the Existing Hydrant at Woodward Crescent

Associated Environmental conducted a desktop assessment of possible ways to draw water from fire hydrants on Woodward Crescent and measured the total lengths for different paths of running fire hose to the north west trail in the park. This option would not require additional approval, special permitting or water quality testing. A portable water meter may be rented from EPCOR for each season plant establishment is scheduled.

Water trucks could be brought into the park empty across one of the footbridges and loaded at the edge of the SUP from the fire hoses to water the landscape.

Obtain a Water Supply from the Country Club

The Country Club has an approved water intake from the North Saskatchewan River and Initial communication has been conducted with the club to investigate the potential for some of this intake to be temporarily diverted into the park for irrigation.

FEASIBILITY OF RE-ESTABLISHMENT OF WATER COURSE #2

Investigation for creation of a swale in place of the previous intermittent stream was completed, taking into account the current state of un-named stream WC2 which previously flowed into the park from the west, and which had been filled in during farming operations. The dimensions and longitudinal grading for a possible swale were conceptually investigated. It was found that the swale could be constructed with a longitudinal grade of approximately 1.5% to connect a possible culvert under the existing SUP with the edge of the forest on the east side of the meadow as shown in the plan on the following page.

A site visit was also conducted with the City on May 24, 2024, partially to assess the feasibility of re-establishing WC2. It was observed that changes to the catchment of the watercourse on the golf course lands to the west of the park essentially mean that very little run-off is expected from the catchment to the west and therefore reconstructing the watercourse would result in few benefits as it would have very little water to convey. The drainage of the meadow area currently sheet flows towards the riparian forest and the river and does not need to be concentrated.

The reconstruction of the watercourse would require a substantial amount of regrading and disturbance of native shrubs that are regrowing in this area. Construction costs for a grassed swale would typically be moderate however, the access limitations mean that this work would likely have to be done by smaller equipment, which would increase the cost. A culvert would also need to be installed under the existing SUP, requiring removal and replacement of a portion of the SUP plus rehabilitation of adjoining landscape.

Associated Environmental investigated site specific topography onsite and west of the park to gauge the feasibility of a hydrological study. This was to anticipate flow from the adjacent neighborhood catchment area. Furthermore, onsite drainage was estimated to understand the potential surface runoff, which could feed the stream, if restored. Discussions with regulatory advisors were held to gauge the likelihood of requiring a water act approval for any work. It was advised that early communication with the regulator could help reduce the effort or in the best case avert a water act application if the current status of the stream was clearly laid out and agreed upon.

Reconstruction of the watercourse may trigger a requirement for regulatory approvals as the watercourse may be considered a tributary to the North Saskatchewan River.

SLS/EIA REVIEW

A memo prepared by Associated Environmental summarized the 2019 environmental impact assessment (EIA), prepared as part of the Oleskiw River Valley Park Master Plan.

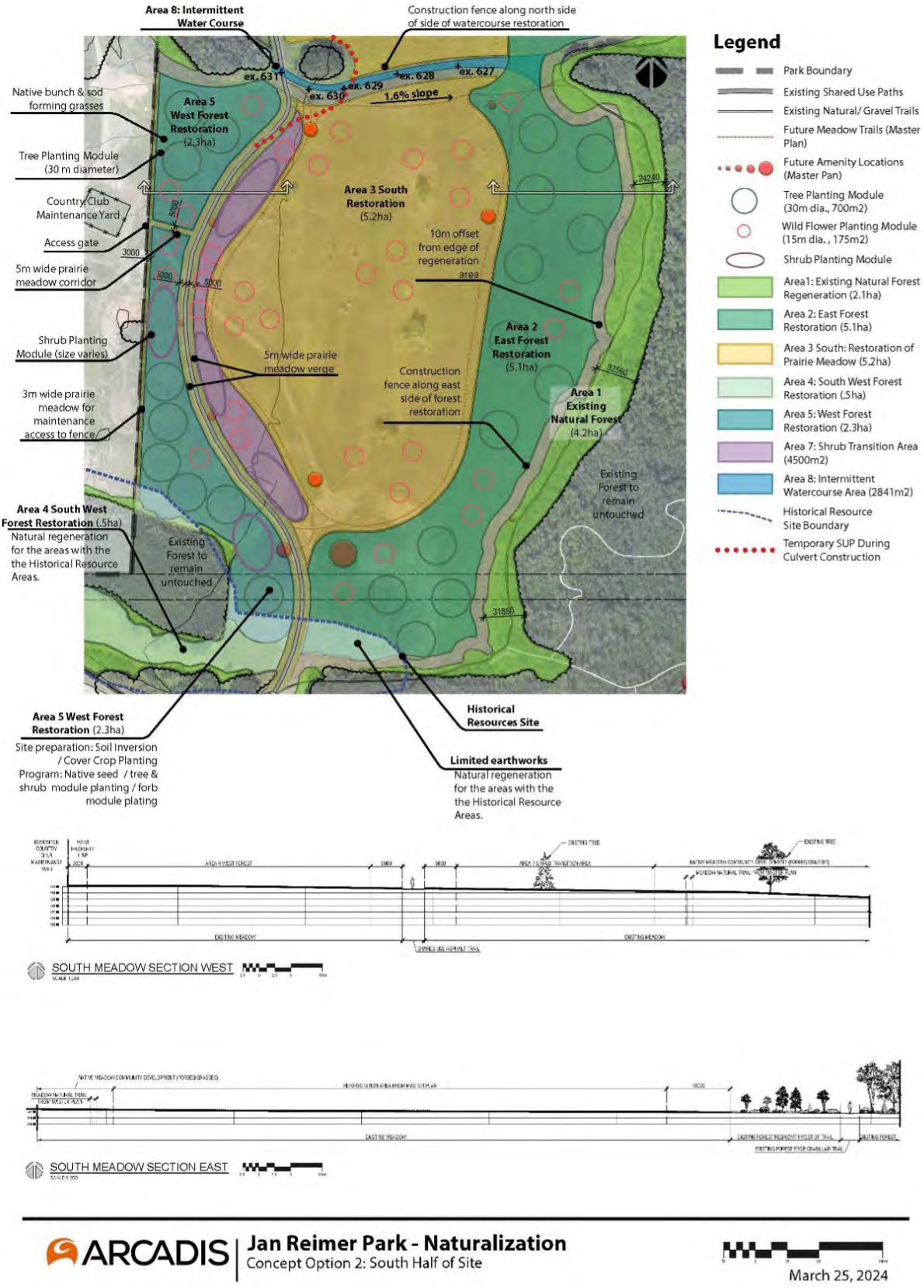
The Technical Memorandum is included in Appendix A.

GEOTECHNICAL REVIEW

Geotechnical review was conducted as part of this project by Thurber Engineering, who also completed geotechnical investigation for the park's Master Plan.

Thurber_20231218_43923_Jan Reimer Park Naturalization Site Visit on December 8 2023

Thurber's main focus on this site visit was undertaking a preliminary assessment of the slope stability of the valley slope located east of Woodward Crescent and above the current access trail that connects the uplands with the lower trails.


Area 8: Intermittent Water Course
Construction fence along north side of side of watercourse restoration
ex. 631
ex. 630
ex. 629
ex. 628
ex. 627
1.6% slope
Native bunch & sod forming grasses
Area 5 West Forest Restoration (2.3ha)
Tree Planting Module (30 m diameter)
Country Club Maintenance Yard
Access gate
5m wide prairie meadow corridor
Area 3 South Restoration (5.2ha)
10m offset from edge of regeneration area
Shrub Planting Module (size varies)
5m wide prairie meadow verge
Area 2 East Forest Restoration (5.1ha)
Construction fence along east side of forest restoration
3m wide prairie meadow for maintenance access to fence
Area 1 Existing Natural Forest (4.2ha)
Existing Forest to remain untouched
Area 4 South West Forest Restoration (.5ha)
Natural regeneration for the areas with the the Historical Resource Areas.
Existing Forest to remain untouched
Area 5 West Forest Restoration (2.3ha)
Site preparation: Soil Inversion / Cover Crop Planting
Program: Native seed / tree & shrub module planting / forb module plating
Historical Resources Site
Limited earthworks
Natural regeneration for the areas with the the Historical Resource Areas.
Legend
Park Boundary
Existing Shared Use Paths
Existing Natural/ Gravel Trails
Future Meadow Trails (Master Plan)
Future Amenity Locations (Master Pan)
Tree Planting Module (30m dia., 700m2)
Wild Flower Planting Module (15m dia., 175m2)
Shrub Planting Module
Area1: Existing Natural Forest Regeneration (2.1ha)
Area 2: East Forest Restoration (5.1ha)
Area 3 South: Restoration of Prairie Meadow (5.2ha)
Area 4: South West Forest Restoration (.5ha)
Area 5: West Forest Restoration (2.3ha)
Area 7: Shrub Transition Area (4500m2)
Area 8: Intermittent Watercourse Area (2841m2)
Historical Resource Site Boundary
Temporary SUP During Culvert Construction
SOUTH MEADOW SECTION WEST
SOUTH MEADOW SECTION EAST
ARCADIS
Jan Reimer Park - Naturalization
Concept Option 2: South Half of Site
March 25, 2024

Their observations were that the valley slope located east of Woodward Crescent and above the current access trail appeared to be performing adequately, and no signs of recent slope instability were noted. However, some slope erosion was observed along the toe of the slopes, leaving the roots of the vegetation exposed and some sections of the slope with a vertical cut. Consideration should be given to implementation of erosion control measures in selected locations along the toe of the slopes to reduce the risk of it causing future slope instability.

Jan Reimer (Oleskiw) Park Naturalization Geotechnical Desktop Study (Thurber 2024)

Thurber noted that the main geotechnical constraint for restoration of the park is potential for impacts to the existing slope stability conditions, in the event that future construction activities on the slopes are required. The slopes along the west edge of Jan Reimer Park are termed as "abandoned slopes" and hence are not subjected to future river erosion processes. However, they would be affected by man-made processes such as cuts and fills and hence these should generally be avoided, or where necessary they would have to be properly assessed.

Changes in loading conditions can affect this fragile balance and trigger movements in the landslides. Such movements could directly or indirectly affect nearby developments.

This study is included in Appendix B.

No grading of these slopes is currently proposed in the draft concept plan.

INFRASTRUCTURE/SERVICING ANALYSIS

The lack of a potable water supply is discussed in section 3.5.2. Alternative temporary water supply options are discussed in Section 4.5.2.

The lack of an electrical supply to the park would be a limitation during the construction period but could be replaced by the use of generators.

VEGETATION COMMUNITY ANALYSIS

Areas to be Protected

All of the riparian forest along the eastern and northern portions of the park is planned to be retained unchanged. Similarly, the forest on the western and north-western slopes of the park would be retained unchanged. This includes retention, but management, of groupings of caragana.

Stabilized slope above the trail from Woodward Crescent and the toe of slope and ditch adjoining the trail from Woodward Crescent

Other areas of the park that will be retained and protected but may require minor intervention (weed management) include the natural regrowth areas along the east side of the meadow and in the southwest corner of the site where passive naturalization is occurring as the adjoining forest grows out into the abandoned meadow that was previously farmed.

Areas that require intervention for restoration

The areas of the park's landscape that have been heavily disturbed require some intervention to enable them to regenerate into landscapes representative of the river valley native landscapes. These areas include:

+ All of the central meadow
+ The area between the SUP and the Country Club storage area on the west side of the site
+ Pockets of disturbed landscape between the SUP and the western slopes

Rare Plants

Rare plants have been identified on the site as described in section 4.4.2. These may require further site verification to determine areas that need to be protected.

Planted Trees

Some trees have been planted in the disturbed areas of the park, either by the Country Club, the farmer or the City. Some large dead poplars are likely remnants of the former farm. The intent is to retain them unless they are deemed to be hazardous.

Some small trees planted on the east side of the meadow in the forest regrowth area look as though they were planted as seedlings, possibly by community groups. Even though most of these tree species are not native to the site, the intent is to leave them in situ.

FAUNA AND BIRDLIFE

Jan Reimer Park provides critical habitat, corridor and linkage for a diverse range of species with the deciduous forest providing greatest diversity and highest habitat potential. Mammals such as coyotes, chipmunks and red squirrel were identified on site and could be a corridor for black bears and cougars. 95 bird species have been identified and most are common and resilient to human disturbances. No amphibians or reptiles were observed on site, however red-sided garter snakes are documented through out the river valley.

The EIA prepared for the park Master Plan identified that the "Park provides a relatively large area of greenspace within the city. Upstream (west) of the park, the Gariepy neighbourhood constrains wildlife movement along the north side of the NSRV, while the Rio Terrace and Quesnell Heights neighbourhoods constrain movement downstream (north) of the park.

The proposed landscape restoration in the park may improve the habitat and facilitate movement of wildlife (fauna and avifauna) through and along the edges of the park. For instance, the proposed naturalized planting along the west edge of the park adjoining the golf course storage area may provide a better corridor for wildlife movement from the rivers edge to the forested west slopes of the park.

Consideration of the Migratory Birds Convention Act

The Migratory Birds Convention Act (MBCA) includes prohibitions against disturbing, destroying, or taking a nest, egg, or nest shelter of a migratory bird. Any vegetation clearing in the park should be avoided within the general nesting period which is between April 14 and August 28 for this region of Alberta. Should vegetation clearing be planned during the breeding season for all other birds, all habitat potentially affected by clearing activities should be surveyed by an experienced wildlife biologist to determine the presence of breeding birds.

A methodology for 'bird sweeps' during the nesting season has been provided separately for this project.

Creation or enhancement of Special Habitats

Edmonton resides in the Central Parkland Natural Subregion, one of the most densely populated Natural Regions in Alberta. This subregion has been intensely cultivated over the past century and only 5% of Central Parkland remains in native vegetation. Restoring the different vegetation communities found in the Central Parkland will increase species diversity and provide a strong link in enhancing wildlife corridors. Enhancing the forest along the perimeter of the site will provide habitat for the greatest number of species from larger mammals to birds and insects. Native prairie restoration will provide a habitat different than the forest, further increasing species diversity within the park. Including pollen and nectar plants in this parkland prairie restoration, will attract and protect many native pollinators such as bees, birds & butterflies.

The proposed landscape restoration may create enhanced habitat for fauna, birdlife and bees.

AESTHETICS / VISUAL QUALITY

The parks varied landscape, in particular the meadow and adjoining forest, provide visual contrast. The meadow allows long views (north – south) and also distant views to the steep embankments on the east side of the North Saskatchewan River. One of the reasons for retaining the meadow, rather than returning it to the forest landscape it would have consisted of before the golf course development, is the views the meadow allows.

The SUP in the northern portion of the park is mostly enclosed by riparian aspen poplar forest, limiting views to the adjoining vegetation.

The northwest portion of the park is defined by steep slopes covered in dark caragana which contrasts with groves of white aspen trunks.

The southwest portion of the park is partially open to the adjoining golf course storage area and its chain-link fence. This unattractive view is planned to be screened by naturalized planting.

Views across the meadow to the east side of the site

View to the Country Club storage area adjoining the park and the south end of the site

Views across the meadow from the south end of the site

Views across the meadow to the west side of the site

Through the public and stakeholder engagement process and engagement with Indigenous communities, the City learned that the field and the forest are highly valued by participants, possibly because of the extended views available across the field to the steep slopes on the east side of the river.

5.0 Draft Concept Design

An analysis of site preparation and naturalized replanting options was considered to inform the draft concept design for the project.

Analysis of Alternative Site Preparation or Site Management Options

The methods considered for the landscape restoration of the site include;

+ Soil inversion and subsequent planting
+ Solarization and subsequent planting
+ Sheet mulching and subsequent planting
+ Passive naturalization

Soil Inversion

The principle of soil inversion is that the inverted soil profile buries the weed seed bank, reduces competition for moisture now held at depth, and makes topsoil accessible only to trees. Deeper propagule rooting of trees improves establishment and growth rates, and produces more robust plantations better able to withstand gales and droughts. Exposed low fertility subsoil provides the ideal growing medium for wildflowers, free of vigorous weed competition. Where combined with tree planting, these sowings may evolve a new native woodland flora as humus accumulates under increasing light stress.(Source: Landlife, National Wildflower Centre, UK)

Soil inversion method can be used in larger areas and where the access to appropriate equipment is available. Soil inversion requires a moldboard plow to invert the soil and, in some instances, followed by secondary shallow tilling. Moldboards are designed to slice, lift and invert the soil. The roots are fractured, the vegetation and seed bank are buried, and the subsoil is now at the surface. The low fertility of the subsoil is a good medium to grow the native plants as it may prove harder for invasives to become established. It is recommended to leave for a growing season to allow for this technique to be effective. Cover crop to reduce erosion may be required.

Soil inversion is proposed for areas of the existing meadow where planting of native trees and shrubs is being proposed.

Why: The current vegetation community is dominated by invasive species and several regulated noxious species.

Cost: Low if cultivation equipment is available.

Solarization

Solarization is the process of placing a clear plastic tarp over a field, garden bed or lawn to heat up the soil underneath. The intention of solarization is to kill weeds or grass, though it can have added benefits of reducing pathogen populations in the soil.

The plastic covering produces a greenhouse effect:

+ The plastic traps heat and moisture, which encourages seed germination and plant growth.
+ By blocking access to water and heating up the soil, the solarization process eventually kills the vegetation underneath.

Clear plastic tarps (2–6 mil) are sufficient for solarization. In dry climates. The process typically takes around two to three weeks during hot summer months. The process is complete when the vegetation underneath the tarp is dead. Source: https://extension.umn.edu/planting-and-growing-guides/solarization-occultation

The solarization method is best used for smaller sites and one without steep slopes. Solarization utilizes large sheets of clear UV-stable plastic. The plastic sheets are staked into the ground covering the vegetation in areas identified for restoration. The sun in turn heats up the area under the plastic sheet, killing the plants and seeds within the soil. The cover should be in place for one full growing season and up to 6 months in cold climates to ensure effectiveness.

Cost: High (UV stable plastic is expensive, however could source used plastic. If plastic sheet is not to damaged it could be used for other projects)

Sheet Mulching

Sheet mulching is useful for smaller sites in shady areas and this technique involves smothering the existing vegetation depriving the vegetation of moisture and light, killing it. Sheet mulching also prevents seed bank in the soil from germinating and the process can be achieved with either a black plastic sheet or cardboard.

+ Rolls of black plastic would be staked into the ground and left for a full growing season. Remove black plastic, seed & plant.
+ Alternatively, cardboard can be used for sheet mulching layering nitrogen and carbon-based material to smother vegetation and stop the seed bank from germinating. Two to three layers of both the nitrogen and carbon-based mulching materials are required sufficiently hold down materials used for the smothering. Watering the site prior to installation of layering materials and during the smothering process is recommended.
  - Carbon Based Materials: Cardboard, newspapers, wood chips / shavings / sawdust, straw / hay.
  - Nitrogen Based Materials: compost, grass clippings

Cost: Moderate (materials are moderately expensive, layering process will require additional time & labour)

Passive Naturalization

Portions of this site may be suitable for passive naturalization, essentially allowing the existing native forest areas to regrow through natural suckering and seeding into adjoining disturbed areas. This approach allows 'nature to do the work' and as long as the species that are regrowing into the disturbed area are native to the site and not weed or non-native species, will result in authentic recreation of the forest vegetation communities.

REPLANTING AND WEED MANAGEMENT OPTIONS

For the disturbed areas of the site that require landscape restoration, a number of approaches were considered, in conjunction with the site preparation alternatives outlined above. Weed management, before, during or after the restoration was also considered. These approaches include:

+ Individual planting of trees and shrubs in existing grassed/weed areas (not preferred)
+ Group plantings in amended (soil) and mulched areas – small trees, shrubs and forbs (preferred)
+ Options for removal and replacement of areas currently dominated by caragana
+ Options for remediation of grassed/weed meadow areas.
+ Avoiding areas of historical significance
+ Passive naturalization

Examples of naturalized planting modules. They represent a microcosm of the aspen parkland landscape.

Proposed Restoration Approaches

There are three types of vegetation communities to be recreated as part of the landscape restoration. These include:

+ Regeneration/recreation of deciduous forest dominated by trembling aspen
+ Restoration of a native rough fescue dominant prairie for the majority of the existing central meadow area
+ Creation of a transitional zone between the trembling aspen dominated deciduous forest and the rough fescue dominant prairie where passive naturalization is not a feasible alternative

Specific approaches to achieve the recreation of the 3 vegetation communities described above include:

1. Create mulched islands for planting in areas designated for reforestation after removing the existing ground cover and completing site preparation and leave surrounding ground cover (meadow) as is except for localized weed spray.
2. Create mulched islands for planting in areas designated for reforestation after removing the existing ground cover and completing site preparation and reconstruct surrounding ground cover (meadow) by cultivating and re-seeding.
3. Complete site preparation, seed with native grasses and plant island of forbs in small mulched islands for areas designated for meadow restoration.
4. Allow passive naturalization (natural re-growth) in areas adjoining existing aspen or poplar stands.

The advantages of creating mulched islands for planting include:

+ Allows for specific soil preparation within the island
+ Retention of soil moisture for plant material
+ Allows the surrounding naturalized grass areas to be mown or slashed if necessary during establishment to control weed growth
+ Suckering species (Aspen, etc.) within the planted islands will grow out into the surrounding naturalized grass areas once it is established

Weed management approaches

Options for management of woody or perennial weeds in the existing meadow area include:

1. Chemical spray of regulated weed species in the meadow – otherwise leave as is.

Options for management of woody or perennial weeds on the slopes west of the SUP include:

+ Remove all existing caragana and replant with native species
+ Remove portions of existing caragana and replant with native species
+ Leave caragana as is but restrict its growth / spread

Concept Design Options

Two concept design options for the park's landscape restoration were prepared based on the site analysis and investigation into site preparation, replanting and weed management options.

The two options have similar elements as outlined below and in the Concept Options Comparison Table in Appendix F. In both options, all of the riparian forest along the eastern and northern portions of the park would be retained unchanged. Similarly, the forest on the western and north-western slopes of the park would be retained unchanged. This includes retention, but management, of groupings of caragana.

Seven distinct areas of restoration were identified in the concept designs. A total of approximately 30 hectares of restoration, including passive naturalization, is proposed in the draft plan.

Area 1

Existing Natural Forest Regeneration (4.2ha)

Area just west of the Existing Forest is currently naturally (passively) regenerating. Minimal intervention (noxious weed management) and let it continue to naturally regenerate.

Area 2

East Forest Restoration (10.1ha)

The ultimate goal of this area is forest restoration. A complete forest community will be established from native grasses and wildflowers, shrubs and trees.

Site Preparation:

+ Implement soil inversion technique in late summer / early fall

Planting Program:

+ Native seed mix combination of sod forming and bunch grasses and forbs
+ Forb module planting
+ Tree module planting

Area 3

North & South: Restoration of Prairie Meadow (11.1ha)

The restoration goal for this area is to recreate an open meadow typically found with in the Aspen Parkland Eco-region. Native grasses and wildflowers will be seeded or planted.

Site Preparation:

+ Soil Inversion late summer / early fall

Planting Program:

+ Native prairie grass seed
+ Native Meadow Sod installation along SUP
+ Wildflower plugs / seedling planting in islands

Area 4

South West Forest Restoration (0.5ha)

This small meadow has substantial existing native plant regrowth. Minimal intervention (weed removal) and allow native trees and shrubs to continue to naturally regenerate into native forest.

In this area there will be no site preparation and no planting.

Area 5

West Forest Restoration (2.3ha)

This area along the west property line adjoining the golf course storage area is an open disturbed landscape. Forest restoration is the ultimate goal and a complete forest community consisting of grasses, wildflowers, shrubs and tree will be planted.

Site Preparation:

+ Soil Inversion late summer early fall

Planting Program:

+ Native Prairie grass seed
+ Native Meadow Sod Installation along SUP
+ Wild flower plug / seedling planting in islands
+ Shrub planting in island beds
+ Tree planting in island beds

Area 6

North West Forest Restoration (0.7ha)

Restoration efforts in this area will concentrate on the disturbed open flat areas at the toes of the slopes. No work is proposed on the steep slopes. Forest restoration is the ultimate goal with a concentration on shrubs and wildflowers.

Site Preparation:

+ Solarization or Sheet Mulching could be considered for these small restoration areas to reduce disturbance to existing soil and potential historical resources in this area.

Planting Program:

+ Seed with native prairie seed mix (native sod opportunity).
+ Plant islands of trees and shrubs.

Area 7

Shrub Transition Area (0.65ha)

Restoration efforts in this area will concentrate on creating a native shrub transitional zone between the Aspen tree stand and the native prairie meadow.

Site Preparation:

+ Soil inversion.

Planting Program:

+ Seed with native grasses concentrating on bunch grasses.
+ Plant islands of shrubs.

The two concept plan options and the preferred concept plan are depicted on the following pages.

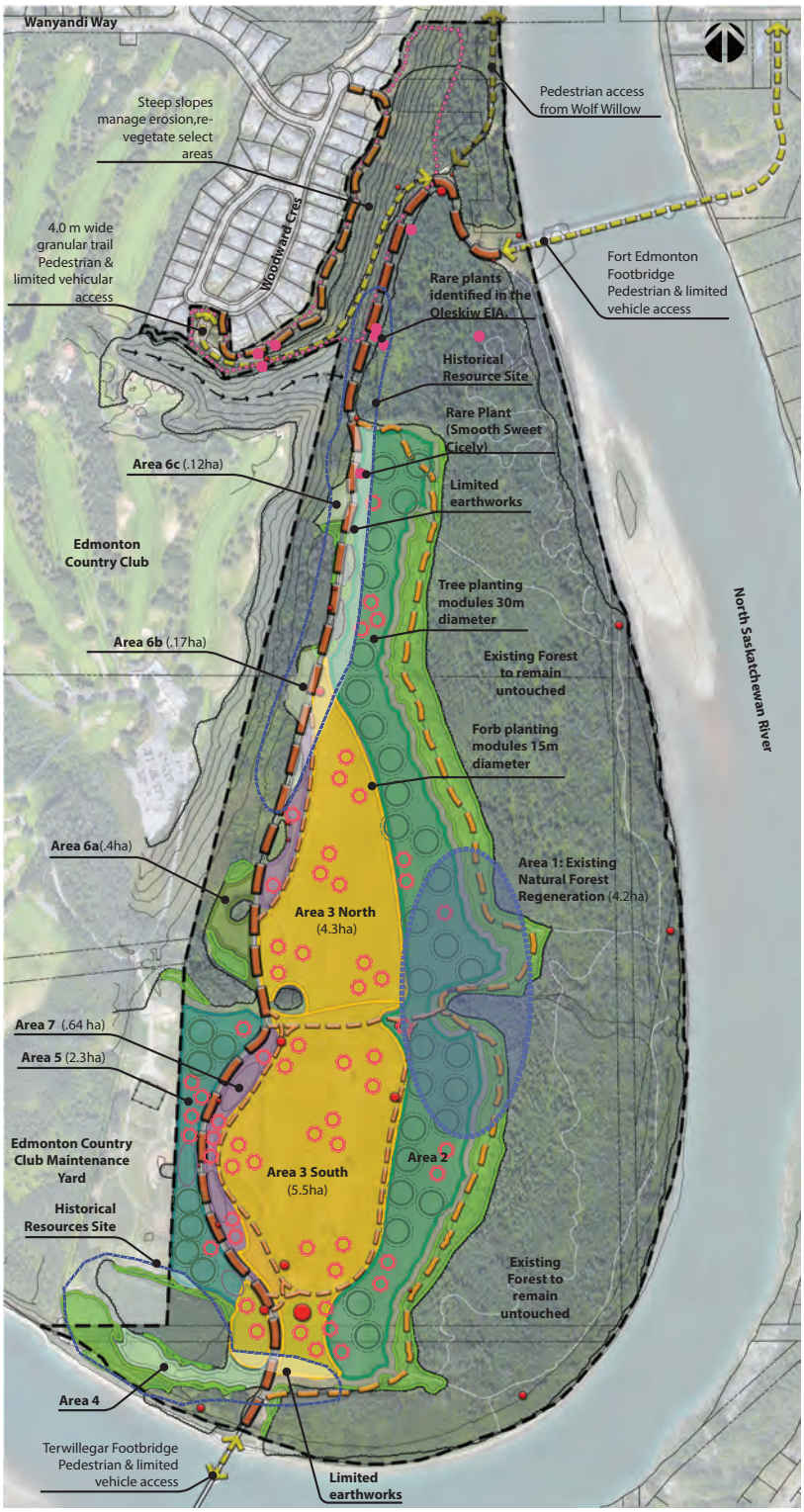
Draft plant lists for the various vegetarian communities are included in Appendix H.

Option 1

This option includes the 7 restoration areas outlined above but does not include the reconstruction of watercourse #2.

Option 2

This option includes the 7 restoration areas outlined above and includes the reconstruction of watercourse #2.



Legend

- Park Boundary
- Existing Shared Use Paths
- Existing Natural/ Gravel Trails
- Future Meadow Trails (Master Plan)
- Future Amenity Locations (Master Pan)
- Steep Slope Area
- Historical Resource Site Boundary

Plants of Interest: Yellow Lady Slipper / Wood Lily
Unique plants have been noted in this area & will be preserved. A Plant Survey will identify their locations and the planted will be protected by fencing to limit ground disturbance.

AREA 1: Existing Natural Forest Regeneration (4.2ha)
Area just east of the Existing Forest is currently naturally regenerating. Minimal intervention (noxious weed management) and let it continue to naturally regenerate. Allow 5-10 m space for future regrowth.

AREA 2: East Forest Restoration (10.1ha)
The ultimate goal of this area is forest restoration. Federal tree planting program grant can be used for forest restoration.
Site Preparation:
- Implement Soil Inversion technique in late summer / early fall

Planting Program:
- Native seed mix combination of sod forming and bunch grasses and forbs
- Forb module planting
- Tree module planting implemented by CoE

AREA 3 North & South: Restoration of Prairie Meadow (11.1ha)
The naturalization goal for this area is to recreate an open meadow typically found with in the Aspen Parkland Eco-region.
Site Preparation:
- Soil Inversion late summer / early fall

Planting Program:
- Native prairie seed
- Native Meadow Sod installation along SUP
- Wildflowers plug / seedling planting in islands

Area 4: South West Forest Restoration (.5ha)
This small meadow has existing native plant colonization. Minimal intervention (weed removal) and let it continue to naturally regenerate into native forest.

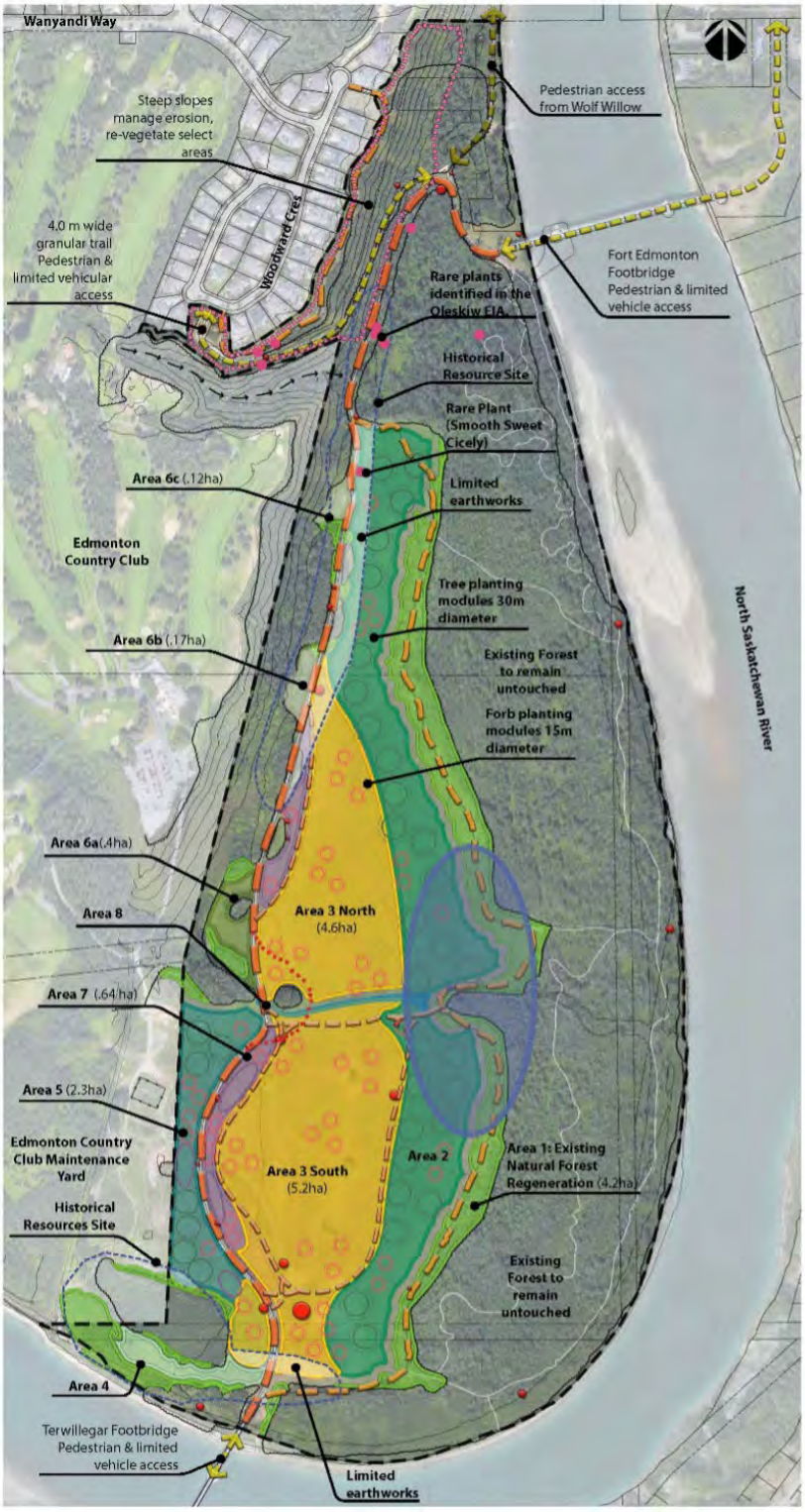
Area 5: West Forest Restoration (2.3ha)
Area along the west property line and golf course storage area is an open disturbed landscape. Forest regeneration is the ultimate goal.
Site Preparation:
Soil Inversion late summer early fall
Planting Program:
Native Prairie Seed
Native Meadow Sod Installation along SUP
Wild flower plug / seedling planting in islands
Shrub planting in island beds
Tree planting in island beds

Area 6: North West Forest Restoration (.7ha)
Naturalization efforts in this area will concentrate on the disturbed areas on the open flat areas.
Site Preparation:
Solarization or Sheet Mulching could be considered for these small restoration areas
Planting Program:
Seed with native prairie seed mix (native sod opportunity).
Plant islands of trees & shrubs.

Area 7: Shrub Transition Area (6440m2)
Naturalization efforts in this area will concentrate on creating a transitional zone between the Aspen tree stand and the rough fescue dominant prairie.
Site Preparation:
Soil inversion
Planting Program:
Seed with native grasses concentrating on bunch grasses.
Plant islands of shrubs.

ARCADIS | **Jan Reimer Park - Naturalization**
Concept Option 1 - Overall Plan

May 3, 2024



Legend

- Park Boundary
- Existing Shared Use Paths
- Existing Natural/ Gravel Trails
- Future Meadow Trails (Master Plan)
- Future Amenity Locations (Master Pan)
- Steep Slope Area
- Historical Resource Site Boundary
- Temporary SUP During Culvert Construction

Plants of Interest: Yellow Lady Slipper / Wood Lily

Unique plants have been noted in this area & will be preserved. A Plant Survey will identify their locations and the planted will be protected by fencing to limit ground disturbance.

AREA 1: Existing Natural Forest Regeneration (4.2ha)

Area just east of the Existing Forest is currently naturally regenerating. Minimal intervention (noxious weed management) and let it continue to naturally regenerate. Allow 5-10 m space for future regrowth.

AREA 2: East Forest Restoration (10.1ha)

The ultimate goal of this area is forest restoration. Federal tree planting program grant can be used for forest restoration.

Site Preparation:
- Implement Soil Inversion technique in late summer / early fall

Planting Program:
- Native seed mix combination of sod forming and bunch grasses and forbs
- Forb module planting
- Tree module planting implemented by CoE

AREA 3 North & South: Restoration of Prairie Meadow (9.8ha)

The naturalization goal for this area is to recreate an open meadow typically found with in the Aspen Parkland Eco-region.

Site Preparation:
- Soil Inversion late summer / early fall

Planting Program:
- Native prairie seed
- Native Meadow Sod installation along SUP
- Wildflowers plug / seedling planting in islands

Area 4: South West Forest Restoration (.5ha)

This small meadow has existing native plant colonization. Minimal intervention (weed removal) and let it continue to naturally regenerate into native forest.

Area 5: West Forest Restoration (2.3ha)

Area along the west property line and golf course storage area is an open disturbed landscape. Forest regeneration is the ultimate goal.

Site Preparation:
Soil Inversion late summer early fall

Planting Program:
Native Prairie Seed
Native Meadow Sod installation along SUP
Wild flower plug / seedling planting in islands
Shrub planting in island beds
Tree planting in island beds

Area 6: North West Forest Restoration (.7ha)

Naturalization efforts in this area will concentrate on the disturbed areas on the open flat areas.

Site Preparation:
Solarization or Sheet Mulching could be considered for these small restoration areas

Planting Program:
Seed with native prairie seed mix (native sod opportunity).
Plant islands of trees & shrubs.

Area 7: Shrub Transition Area (6440m2)

Naturalization efforts in this area will concentrate on creating a transitional zone between the Aspen tree stand and the rough fescue dominant prairie.

Site Preparation:
Soil Inversion

Planting Program:
Seed with native grasses concentrating on bunch grasses.
Plant islands of shrubs.

Area 8: Recreation of the Intermittent Watercourse

Naturalization efforts in this area will focus on recreating intermittent historical creek.

Site Preparation:
Soil inversion & grading.

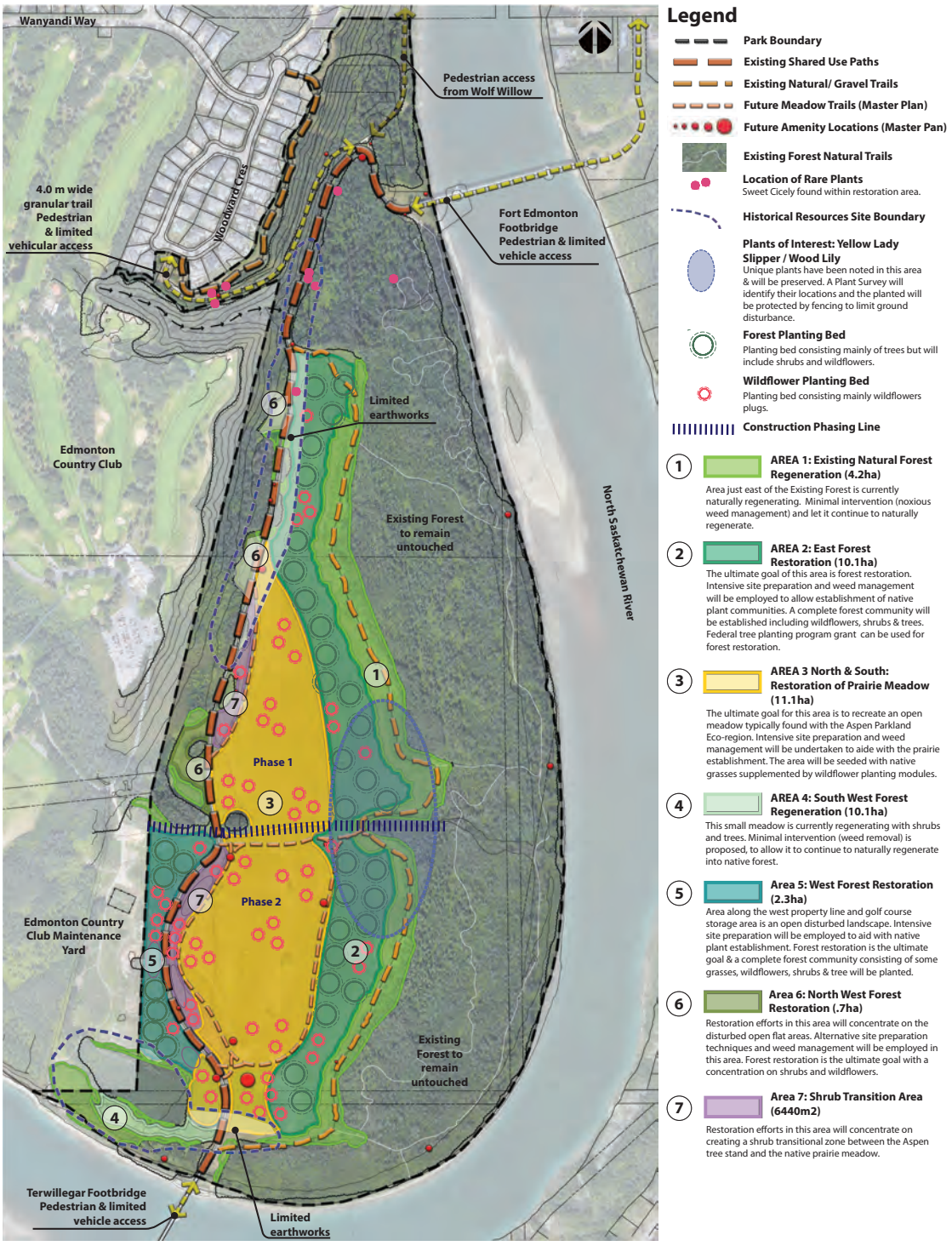
Planting Program:
Prairie meadow planting.

ARCADIS | **Jan Reimer Park - Naturalization**
Concept Option 2 - Overall Plan

May 3, 2024

Draft Restoration Concept Design

The preferred concept design option is essentially Option 1 as outlined above with identification of construction phasing for two phases as further outlined in Chapter 6.



6.0 Preliminary Cost Estimate, Implementation (Phasing) and Preliminary Construction Schedule

Preliminary Cost Estimate

A preliminary cost estimate has been prepared based on the draft concept design options. The estimate included Optional Reconstruction of Watercourse #2. The estimate is included in Appendix G.

Implementation (Phasing)

Options for implementation of the proposed draft concept design were investigated including the sequencing and possible phasing of the work. The potential benefits, or constraints, to implementation options were considered.

The proposed implementation approach for the project is to implement the project in two phases. This will broadly be based on constructing the north portion of the site first to accommodate construction access from the Country Club storage area.

This approach allows for:

+ Reduced impact on park activities.
+ Reduces the area of the park that is being disturbed at one time and therefore reduces the risk of water or wind erosion.
+ Allows for assessment of the success of Phase 1 works before commencing Phase 2.
+ Provide more flexibility in funding if funds are not initially available for the whole project.
+ Could allow for different methods of implementation, for instance, phase 1 could be constructed by a contractor and phase 2 could be completed by community groups.

Federal tree planting program grant can be used for forest restoration. It may also be possible to engage community groups to assist with planting.

Preliminary Construction Schedule

Appendix H includes an implementation outline as well as a detailed preliminary construction schedule. The construction schedule is broadly outlined below.

The timing of the proposed soil inversion is based on avoidance of disturbance during the bird nesting season: (mid April – mid August). It also allows for the inverted area to remain fallow for one winter to allow 'breaking up' of the soil before planting the following spring/summer.

Item #	Task Description	Start Date	Completion Date	Comments
1.0	**Phase 1: South Portion of Park: East & West Forest / Meadow / Shrub Transition**			
1.1	Construction Start	Summer 2025		
1.2	Soil inversion	Fall 2025	Fall 2025	
1.3	Planting	Spring/Summer 2026	Summer 2027	
1.4	Construction Completion Inspection	Fall 2027		
1.5	Final Acceptance Inspection	Summer 2029		Assumes a 2-year establishment period
2.0	**Phase 2: North Portion of Park: East & West Forest / Meadow / Shrub Transition**			
2.1	Construction Start	2026		
2.2	Soil inversion	Fall 2026	Fall 2026	
2.3	Planting	Spring /summer 2027	Summer 2028	
2.4	Construction Completion Inspection	Fall 2028		
2.5	Final Acceptance Inspection	Summer 2030		Assumes a 2-year establishment period

7.0 Summary of Engagement – What we Heard and What we Did

The following activities or events were conducted to engage with Indigenous Nations and communities and the public.

Indigenous Engagement

Indigenous Nations and communities were invited to share input to CREATE along with the City.

Online Workshop

+ Held on June 13, 2024, with 18 representatives from nine Indigenous Nations and communities.

Traditional Ecological Knowledge (TEK) Working Group, Site Visit, and Validation

+ A TEK Working Group was formed to involve Elders, Knowledge Holders, and representatives.

Activities included:

+ Site visit on September 6, 2024, to review restoration areas, discuss design, and provide Indigenous perspectives.
+ Participation included 11 representatives from seven Nations for the site visit and eight representatives from five Nations for validation sessions.

Communication with Indigenous Nations and Communities

+ Over 100 email invitations and 50 follow-up calls/texts with representatives, Elders, and Knowledge Holders from 30 Indigenous Nations and communities.
+ Two email invitations sent to Indigenous leaders from kihcihkaw askî to explore collaboration opportunities.
+ A site visit summary shared with TEK Working Group participants and consultation office representatives.

Public Engagement

The public, along with members of Edmonton's Indigenous community, were invited to ADVISE the City on the concept design.

Survey

+ An online survey was available to the public, including members of Edmonton's Indigenous community, from June 4 to June 23, 2024.

In-Person Open House

+ One in-person open house occurred on June 18, 2024, at the Westridge Wolf Willow Community League Hall.

How We Communicated with the Public

+ Five park signs.
+ 140,000 social media impressions.
+ 7,174 postcards delivered.
+ 1,613 page views on the project web page.

What We Did

Based on the input from First Nations groups, we will integrate their guidance into the selection of native plant species and the protection of historical resources at Jan Reimer Park. The engagement sessions highlighted the importance of including native plants which align with traditional ecological knowledge and supporting biodiversity. We will also prioritize the protection and recognition of archaeological sites, ensuring that these culturally significant areas are respected and preserved throughout the restoration process. These insights will shape our landscape restoration approach, helping us create a park that honors Indigenous perspectives and history.

A What we Heard report is included in Appendix D.

Appendix A
SLS/EIA Review (Associated Environmental)

Appendix B
Jan Reimer (Oleskiw) Park Naturalization Geotechnical Desktop Study (Thurber 2024)

Appendix C
Thurber – Site Visit Notes December 8, 2023

Appendix D
What We Heard Report

Appendix E
North Saskatchewan River Valley ARP Submission

Appendix F
Concept Options Comparison Table

Appendix G
Preliminary Cost Estimate

Appendix H
Preliminary Construction Schedule

Appendix I
Draft Plant Lists