

Starling Neighbourhood Structure Plan

Office Consolidation May 2013

PREPARED BY:

***CURRENT PLANNING BRANCH
SUSTAINABLE DEVELOPMENT DEPARTMENT
CITY OF EDMONTON***

Bylaw 15461 was adopted by Council in August 23, 2010. In May 2013, this document was consolidated by virtue of the incorporation of the following bylaws, which were amendments to the original Bylaw 15461

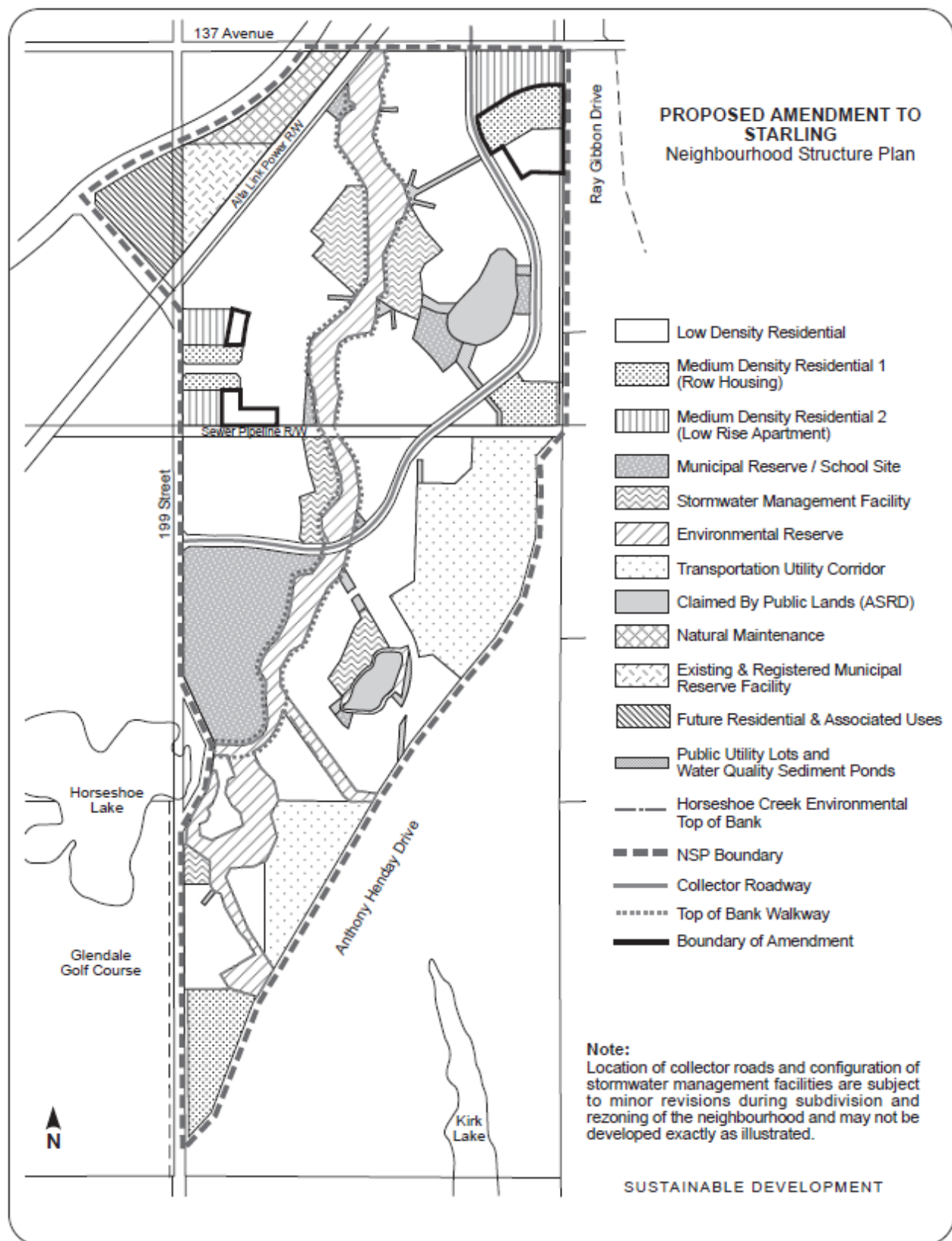
Bylaw 15461	Approved August 23, 2010 (To adopt the Big Lake Neighbourhood Two NSP)
Bylaw 15988	Approved January 30, 2012 (To rename Big Lake Neighbourhood Two to Starling; to increase the developable area of Starling to reflect the decrease from 5 to 6 neighbourhoods in the Big Lake Area Structure Plan; to designate the newly incorporated area as Future Residential and Associated Uses)
Bylaw 16068	Approved May 10, 2013 (To alter the configuration of Medium and Low Density Residential sites)

Editor's Note:

This is an office consolidation edition for the Starling NSP, as approved by City Council on August 23, 2010. For the sake of clarity a standardized format was utilized in this Plan. Private owner's names have been removed in accordance with the Freedom of Information and Protection of Privacy Act. All text changes are noted in the right margin and are italicized where applicable. Furthermore, all reasonable attempts were made to accurately reflect the original Bylaw.

This office consolidation is intended for convenience only. In case of uncertainty, the reader is advised to consult the original Bylaws, available at the Office of the City Clerk.

**City of Edmonton
Planning and Development Department**



Bylaw 16068, Approved May 10, 2013



Starling Neighbourhood Structure Plan

Prepared for: *A private corporation*

Presented by: Select Engineering Consultants Ltd.

Date: August 2010

Amended by editor



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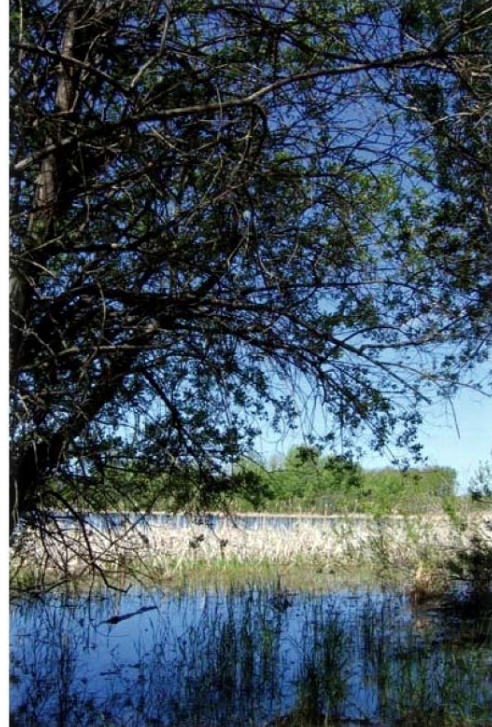


Administration

1.1 Purpose

The purpose of the Starling Neighbourhood Structure Plan (BLNH2 NSP) is to establish a land use framework and servicing objectives for Starling. This Neighbourhood Structure Plan specifies the following:

- Manner in which unique environmental features and natural areas will be incorporated with the development concept;
- Location, configuration and area of residential, parks and open space and public utility land uses;
- Density of development;
- Pattern and alignment of the collector roadways and pedestrian walkway systems;
- A utility infrastructure concept; and
- Implementation and phasing of the development.



1.2 Authority

Originally adopted by Council in 1991, the Big Lake Area Structure Plan Bylaw 9878 was amended and approved as Bylaw 14802 in an office consolidation on January 14, 2008. The Area Structure Plan (ASP) outlines the overall policy framework for five neighbourhoods in the Big Lake area. The first neighbourhood, Big Lake Neighbourhood One Neighbourhood Structure Plan, Bylaw 14803, was approved by City Council at that same January 14, 2008 meeting. Big Lake Neighbourhood One is a primarily residential community. This neighbourhood is also primarily residential and it is identified in the Big Lake Area Structure Plan as Starling.

1.3 Timeframe

The build out of Starling will be determined by future economic conditions and market demands. It is estimated Starling would be developed over the next 10 years.

1.4 Interpretation

All symbols, locations, and boundaries shown in the Neighbourhood Structure Plan figures shall be interpreted as conceptual unless otherwise specified in the document, or where they coincide with clearly recognizable physical or fixed features within the plan area.

For each subsection under Land Use Concept, a description of applicable land use strategies (e.g. Urban Design) and types (e.g. Residential) is provided for the plan followed by applicable objectives, policies, implementation, rationale, and technical summary.

A policy statement(s) containing “shall” is mandatory and must be implemented. Where a policy proves impractical or impossible, an applicant may apply to amend the plan. A policy statement(s) containing “should” is an advisory statement and indicates the preferred objective, policy and/or implementation strategy. If the “should” statement is not followed because it is impractical or impossible, the intent of the policy may be met through other agreed-upon means.

1.5 Amendment

Future amendments that may be required to the Starling Neighbourhood Structure Plan (BLNH2) document involving policies, text or mapping shall be completed in accordance with the Municipal Government Act, and all other applicable bylaws, policies and procedures.



Plan Context

2.0

2.1 Location

The proximity of Starling (BLNH2) to Big Lake and the south-eastern edge of Lois Hole Centennial Provincial Park make it a special place. **(See Figure 1)** Given the location, BLNH2 has a number of unique planning and conservation challenges that have been considered, including the international ecological significance of Big Lake and the convergence of four separate municipalities (Edmonton, St. Albert, Sturgeon County and Parkland County). Befitting the legacy of Big Lake and Lois Hole Centennial Provincial Park, Starling pays particular attention to its ecological context in north Edmonton.

Starling is defined by 137 Avenue to the north, a future arterial road to the northwest, and 199 Street to the west. (See Figure 2) The Ray Gibbon Drive and Anthony Henday Drive corridors define the east and southern boundary. The Horseshoe Creek corridor and its adjacent uplands exist through the central Plan area and essentially bisect the neighbourhood into two sections. The gross area of the Neighbourhood Structure Plan is approximately 132 hectares.

*Bylaw 15988
Jan. 30, 2012*

2.2 Background

The BLN2 NSP has been prepared to acquire the necessary municipal approvals to secure development rights in the Plan area. The preparation of the Neighbourhood Structure Plan has been guided by existing City of Edmonton statutory plans and policies. The Plan area represents a logical extension of infrastructure and services relative to currently planned and approved neighbourhoods. The preparation of this Neighbourhood Structure Plan has been guided by The Way We Grow Municipal Development Plan, The Smart Choices Initiatives, The North Saskatchewan River Valley Area Redevelopment Plan (1985), Conservation of Natural Areas in Edmonton's Tablelands (1993), the Urban Parks Management Plan (2006) and The Natural Connections Strategic Plan (2007).

An amendment to the Big Lake Area Structure Plan (ASP) and a Community Knowledge Campus (CKC) Study have been prepared and submitted to the City of Edmonton under separate cover to support this BLNH2 NSP.

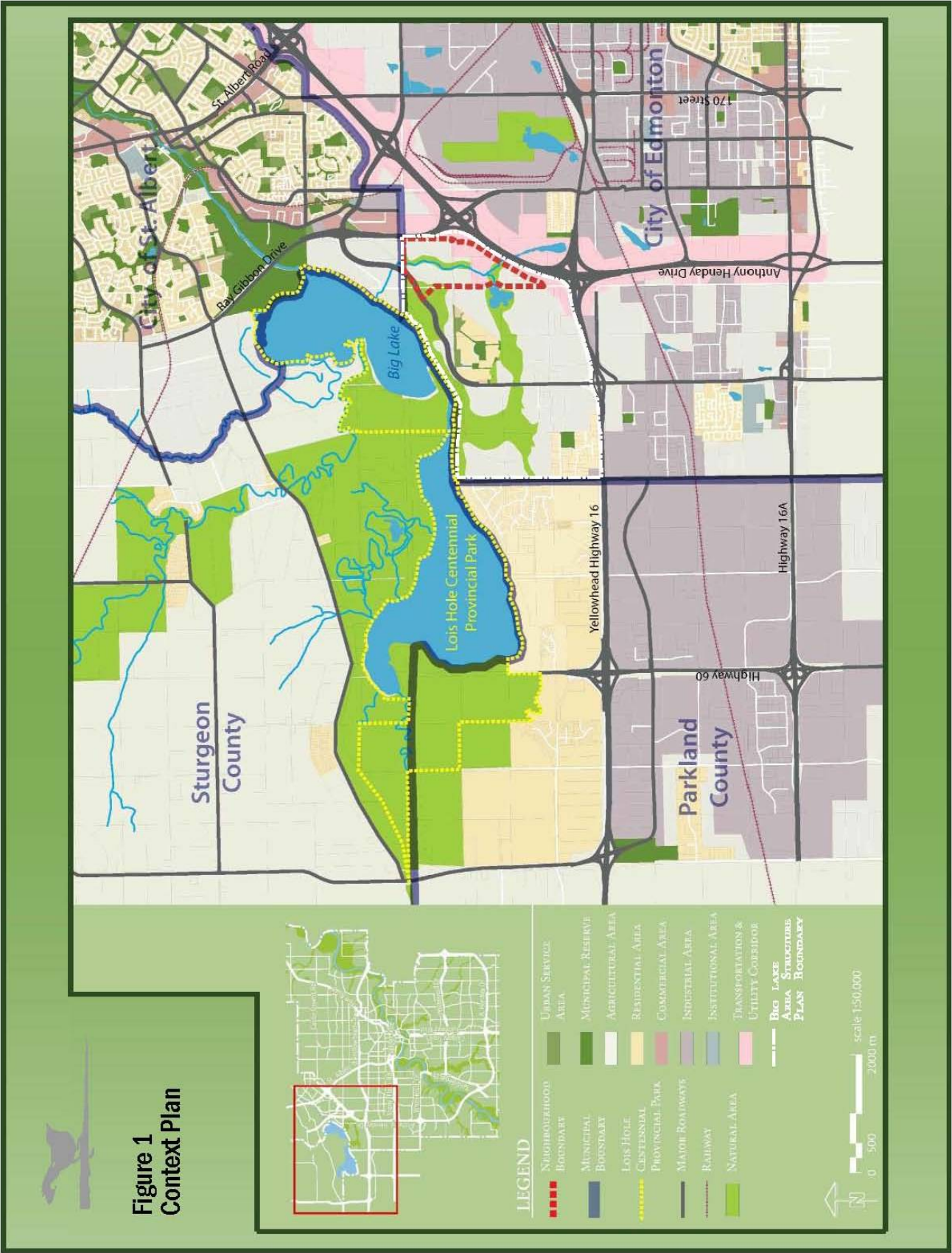
The following technical studies have also been completed in support of the Starling Neighbourhood Structure Plan:

Ecological Design Report

The Ecological Design Report contains:

- Wetland Value and Function Assessment
- Preliminary Biological Resource Assessment
- Fish and Habitat Assessment
- Historical Resources Overview

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Jan. 30, 2012





Planning documents-

- Starling Neighbourhood Structure Plan
- Environmental Site Assessment
- Geotechnical Evaluation/ Slope Stability Analysis
- Natural Area Management Plan

Engineering documents-

- Neighbourhood Design Report (by a private corporation) *Amended by editor*
- Traffic Impact Assessment (by a private corporation) *Amended by editor*
- Hydraulic Network Analysis (by a private corporation) *Amended by editor*

2.3 Land Ownership

The approximately 132 hectare Neighbourhood Structure Plan area is currently held under several different private, corporate and government land titles. Land ownership within the Neighbourhood Structure Plan area is listed in Table 1: Land Ownership and shown on **Figure 3**. A Private Corporate Company is the majority land holder, owning 85.91 hectares of the 132.07 hectares of land. The remaining landowners have been consulted during the process.

*Bylaw 15988
Jan. 30, 2012*

Source: Certificate of Title Search

Note: Areas used for land ownership in the Neighbourhood Structure Plan are taken from digital survey data and may not match registered certificates of title areas exactly.

Table 1 – Land Ownership					
	Legal Description	COT #	Owner	Area (ha)	% Total
1	Lot A, Plan 1456 RS (Ptn)	052 329 889	Four Private Individuals	2.38	1.8%
2	Lot R, Plan 1456 RS	842 224 812	The City of Edmonton	2.38	1.8%
3	Lot B, Plan 1456 RS	082 005 103	Private - Corporate	8.09	6.1%
4	NW1/4 20-53-25-4	072 337 200	Private - Corporate	39.1	29.6%
5	Lot C, Plan 1456 RS	072 650 551	Private - Corporate	8.09	6.1%
6	RW 53, Plan 2648 MC	092 173 287+9	Private - Corporate	2.2	1.7%
7	Lot 1A, Plan 4291 RS	962 092 556	Private - Corporate	16.18	12.3%
8	SW¼-20-53-25-4	072 652 012+2	Her Majesty the Queen in Right of AB	12.65	9.6%
9	Lot 1, Blk 2, Plan 072 9520	072 652 012	Her Majesty the Queen in Right of AB	15.45	11.7%
10	Lot 1, Blk 1, Plan 032 5348	032 409 263	Her Majesty the Queen in Right of AB	6.77	5.1%
11	NW¼-17-53-25-4	012 199 949	Private - Corporate	3.11	2.4%
12	NW¼-17-53-25-4	912 208 104+1	Her Majesty the Queen in Right of AB	4.61	3.5%
13	NW¼-17-53-25-4	41T259	Private - Corporate	3.77	2.9%
14	NW¼-17-53-25-4	912 208 104 +2	Her Majesty the Queen in Right of AB	2.95	2.2%
15	SW¼-20-53-25-4	072 652 012+1	Her Majesty the Queen in Right of AB	0.15	0.1%
16	NE¼-19-53-25-4 (Ptn)	072 571 019 +1	Private - Association	4.19	3.2%
Total:				132.07	100%

*Bylaw 15988
Jan. 30, 2012*



2.4 Pipelines and Oil Well Sites

A gas line currently exists adjacent to 199 Street for a short stretch in the southwest Plan area. This gas line currently services existing residences along 199 Street. This gas service will be removed and relocated as development proceeds. **Table 2** is a summary of pipeline information in the Plan area.

*Amended
by editor*

A power line right of way cuts diagonally across the northwest Plan area and the Capital Region Sewage Commission Pipeline right of way runs east west through the central Plan area. Both of these existing pipelines are retained in the Plan. Neither of these pipelines imposes major constraints to future development. There are no well sites in the Plan area.

*Amended
by editor*

Table 2 - Pipelines and Rights of Way				
	Legal Description	Owner	Utility	Area (ha)
1	Plan 2648 MC	<i>Private – Corporate</i>	Power line	2.21
2	Plan 842 2193	<i>Private – Corporate</i>	Sewer Pipeline	1.97
3	Plan 3903 TR	<i>Private – Corporate</i>	Gas Pipeline	1.84

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2.5 Province of Alberta

In support of approvals under the Water Act and Public Lands Act, a private corporation conducted a Wetland Value and Function Assessment, in the fall of 2007 to evaluate the size, permanence and significance of wetlands in the project area and included a historical air photo review to determine the presence of naturally occurring wetlands on the property. *This assessment did not include the portion of NE¼-19-53-25-4 added to the Plan area in 2011.* As a result of this investigation, the Province claimed two wetlands (Wetland 1 is located in NW 20-53-25-4 and Wetland 2 is located in SW 20-53-25-4) as Crown wetlands and also the bed and shore of Horseshoe Creek within the Plan boundaries. Geotechnical cross sections of the creek corridor were completed to establish a geotechnical top of bank and slope stability. This investigation also defined the bed and shore of the creek for the areas claimed by ASRD. Both the naturally occurring wetlands and the Horseshoe Creek Corridor will be retained and incorporated into the Neighbourhood Structure Plan. During the review, Alberta Sustainable Resource Development did acknowledge that the northern wetland had been disturbed over time and stated that modifications to the form and shape of the wetland would be considered if it enhanced the wetlands potential.

*Bylaw 15988
Jan. 30, 2012*

The areas claimed by ASRD are conceptually illustrated on **Figure 5: Development Concept Plan**. The exact size and location of the bed and shore will be determined at the time of subdivision.

2.6 Site Context

The proximity of BLNH2 to Big Lake and the south-eastern edge of Lois Hole Centennial Provincial Park make it a special place. Given its location, BLNH2 has a number of unique planning and conservation challenges that have been considered, including the international ecological significance of Big Lake and the convergence of four separate municipalities (Edmonton, St. Albert, Sturgeon County and Parkland County.)

Table 3 – Environmental Significance of Big Lake Area

International	Big Lake is designated an internationally significant “Important Bird Area” by Birdlife International.
Continental	Ducks Unlimited Canada recognizes Big Lake as a significant area for nesting and staging waterfowl and designates Big Lake as one of the 20 most important waterfowl habitat units as part of the Wetlands for Tomorrow Program.
National	Big Lake is given the highest possible rating for waterfowl capacity by the Canadian Land Inventory (Map 83H).
Provincial	<p>Alberta Community Development (Parks and Protected Areas Division) recognizes Big Lake as an “Environmentally Significant Area” for the following reasons:</p> <ul style="list-style-type: none"> • It is one of the 20 most important waterfowl habitat units in province for moulting, staging and migration of waterfowl; • It has important and diverse lake and riparian habitats; • The lakeshore and wetland bordering the lake have a high environmental sensitivity; • The south shore supports large stands of mature aspen, birch and white spruce which have important value and provide habitat for non-game wildlife species, and; • Industrial and resource development and expanded agricultural use of the immediate shoreline could have a large negative impact on the lake’s habitat and production potential. <p>The Government of Alberta designates Big Lake a “Conservation Natural Area” (1999) under Alberta Land and Protected Areas Program, and acknowledges Big Lake in its Special Places 2000 program.</p> <p>Big Lake Natural Area is incorporated into Lois Hole Centennial Provincial Park by the Government of Alberta (2005), increasing its status as a protected area.</p>
Municipal	Big Lake is recognized as a critical “Regional Biodiversity Core Area” and an ecological focus area for strategic conservation planning by the City of Edmonton. The main goal is to maintain connectivity between existing habitats and enhance connectivity towards the North Saskatchewan River Valley.

2.7 Topography

Upon obtaining permission from property owners within *the original Plan area*, a perimeter survey was conducted in the summer of 2008. This survey established the Plan boundary and also collected existing ground contour information for *the original Plan area*. Although the land slopes naturally from the external Plan boundaries inward towards Horseshoe Creek, several higher promontories do exist in the Plan area. Aside from the Horseshoe Creek corridor, the lowest areas are generally found in the northwest Plan area. **(See Figure 4)**

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2.8 Soils

The soils in the Plan area are primarily topsoil underlain by Lacustrine Clay and are considered suitable for development. As more detailed engineering is completed in the area the existing soil conditions in Starling may support the incorporation of low impact development (LID) and alternative construction methods currently being explored by the City of Edmonton.

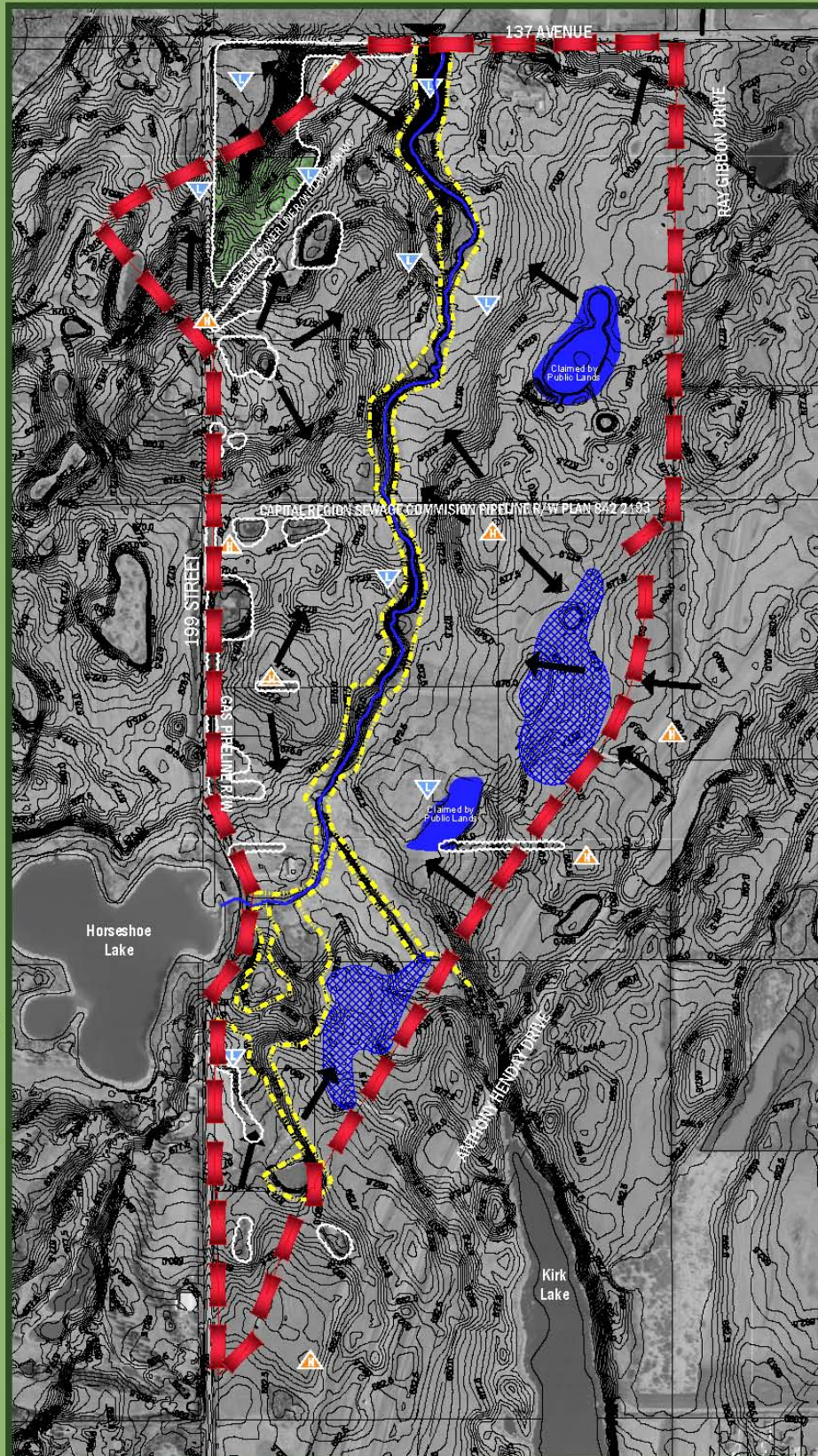
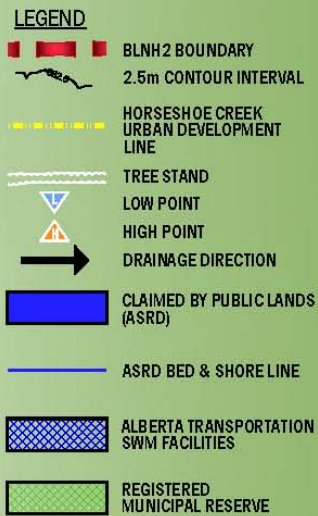
2.9 Geotechnical

A private corporation drilled a series of test holes in *the original Plan area* in 2007 and 2008. A private corporation conducted additional geotechnical investigations in 2008 and 2009.

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Geotechnical cross sections were completed at points across the Horseshoe Creek corridor to establish the geotechnical top of bank and slope stability of Horseshoe Creek in the north Plan area and a survey was completed to set the line of stability. *A private corporation* compiled all the data into one complete geotechnical report in July 2008. These reports are contained in the appendix of the Ecological Design Report (EDR).

Figure 4
Existing Conditions



SOURCE: AERIAL PHOTO, THE CITY OF EDMONTON, 2007

2.10 Natural Areas and Ecological Resources

Starling contains important ecological resources and has natural connections that have a broader regional significance. Horseshoe Creek runs through the centre of the Plan area and provides both hydrological and terrestrial connections between Horseshoe Lake to the west, Kirk Lake to the south and Big Lake to the north. The design of Neighbourhood Two recognizes the value of these connections between natural areas and their surroundings and understands that this connectivity is inherent to maintaining the greater ecological network in the vicinity of Big Lake.

2.11 Historical Resources

Pursuant to Section 31 of the Historical Resources Act, development proponents and/or their representatives are required to report the discovery of any archaeological, historic period or paleontological resources, which may be encountered during construction.

An on-site inspection for the original Plan area was conducted in October 2007 by Alberta Western Heritage Inc. to evaluate the level of historic potential of the proposed Starling neighbourhood. The inspection revealed that, similar to previous investigations conducted in 1986, 2004 and 2006, the vast majority of the Plan area had previously been intensively cultivated. It was determined through this investigation, coupled with the three previous investigations, that development should not be impeded as any sites found were of minor significance and possessed no historical resource value. The Historical Resources Assessment concluded that subdivision development be able to proceed with no additional archaeological assessment required.

*Bylaw 15988
Jan. 30, 2012*

2.12 Existing Land Uses

Small clumps of trees are scattered in the west plan area and along the Horseshoe Creek corridor and a larger stand of trees exists in the extreme northwest Plan area. The remainder of the Plan area has been cleared and continues to be used primarily for agricultural purposes. A variety of fences existing in the Plan area currently create barriers to wildlife movement in the Plan area. The Horseshoe Creek corridor is a major ecological feature through the central Plan area and bisects the Plan area into two parts. Two secondary channels split off from Horseshoe Creek towards the southeast and further subdivide the Plan into multiple smaller potential development areas as the Plan boundary narrows to a point at the south edge. Since these secondary channels have been established through a top of bank walk they will require modification to respect Policy C542 when more detailed geotechnical and survey information is available at the zoning and subdivision process.

Two crown wetlands claimed by the Province are retained in the Plan. Both of the wetlands are located east of the Horseshoe Creek corridor, one in the northern Plan area and one more southerly.

Two stormwater management facilities constructed in the south Plan area are also incorporated into the design. These two facilities were built to service Anthony Henday Drive.

A power line right of way (RW) cuts diagonally across the northwest Plan area and the Capital Region Sewage Commission Pipeline right of way runs east west through the central Plan area. Both of these existing pipelines are retained in the Plan. A gas line currently runs adjacent to 199 Street for a short stretch in the southwest Plan area. This gas line currently services existing

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by editor*

residences along 199 Street. The gas service will be removed and relocated into the 199 Street rights of way in the future when it is upgraded.

Several subdivisions have occurred in the Plan area. As a result of the registration of Plan 1456RS in the northwest Plan area, a triangular shaped parcel of Municipal Reserve is registered north of the *private corporate* RW. *Part of this subdivision included another parcel to the north of the Municipal Reserve. A portion of this parcel is located within the extreme northwest corner of the Plan and is identified as Natural Maintenance in the approved Big Lake Area Structure Plan.*

Bylaw 15988
Jan. 30, 2012

This natural maintenance area north of the *private corporate* RW contains part of substantial treed area that extends north towards Lois Hole Centennial Provincial Park. The “natural maintenance” designation is retained on this area in the Neighbourhood Structure Plan.

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by editor

The *private* Golf Course exists outside of the Plan boundary west of 199 Street in the south Plan area, but a parking area for the Glendale exists within the Plan boundary in the south Plan area east of 199 Street.

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Several country residences and their associated outbuildings exist in the Plan area. Some are rented and some are privately owned. These residences will be removed as development proceeds.

2.13 Public Involvement

Through the development of the Plan, meetings were convened with stakeholders, non profit organizations, landowners and numerous City of Edmonton departments.

Private non-profit group

An initial meeting was held with a *private non-profit group* early in the design process in November 2007. *The private non-profit group* identified three primary issues. These included:

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by editor

- Altering the water quality and quantity of Horseshoe Creek and subsequently the vegetation downstream;
- Maintaining water quality and quantity; and
- Maintaining wildlife movement in the greater Big Lake area.

The Starling Ecological Design Report (EDR) submitted under separate cover provides additional details regarding discussions with *the private non-profit group*.

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A further set of discussions was held with *the private non-profit group* in July 2010.

Private non-profit group 2

Another *private non-profit group* (*private non-profit group 2*) met with the developer and consultants on the Big Lake site in October 2007 and followed up with a written summary of their expectations. The *private non-profit group 2* highlighted the environmental sensitivity of Starling in terms of the greater Big Lake hydrologic catchment area and emphasized the value of the Horseshoe Creek corridor in providing riparian habitat and connections to the west and north. The elements of neighbourhood design they considered priorities included:

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by editor

- Appropriate setbacks from Horseshoe Creek and avoidance of a top of bank road;
- Retention of existing vegetation;

- Creation of greenway links between natural areas;
- Creation of minimal impact trails along Horseshoe Creek to adjacent neighbourhoods and Lois Hole Centennial Provincial Park; and
- Creation of public parking opportunities and access from roadways to natural areas.

A further set of discussions was held with the *private non-profit group 2* in July 2010.

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Public Consultation

Following City review and circulation a public meeting was held at the *private* Golf Course Club House on November 2009.

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by editor*

A comprehensive list of stakeholders that have been contacted, consulted or otherwise involved through both the preliminary and public planning processes for BLNH2 NSP is listed in **Table 4**, below.

Table 4 – Stakeholder Consultation	
Client	<i>Private – Corporate</i>
Consultants	<i>Private – Corporate – transportation engineering</i> <i>Private – Corporate – environmental review</i> <i>Private – Corporate – civil engineering</i> <i>Private – Corporate – legal surveying</i> <i>Private – Corporate – geotechnical engineering</i> <i>Private – Corporate – planning services</i> <i>Private – Corporate – planning services</i> <i>Private – Corporate – historical resources assessment</i>
Property owners	City of Edmonton <i>Private – Corporate</i> <i>Private – Corporate</i> <i>Private – Corporate</i> <i>Private non-corporate</i> Province of Alberta (<i>private non-corporate</i>) <i>Private non-corporate, private non-corporate and private non-corporate</i>
Provincial Government	Alberta Environment (We need to confirm all the official names) Public Lands Ministry of Infrastructure Ministry of Transportation Sustainable Resource Development Tourism, Parks, Recreation and Culture
Adjacent municipalities	City of St. Albert Parkland County Sturgeon County

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by editor*

City of Edmonton	Community Services Transportation Department Asset Management and Public Works, Drainage Services General Manager, Gary Klassen Intermunicipal Affairs Mayor Stephen Mandel Office of Environment, Energy Management and Natural Areas Planning and Development Ward 1 councillors Karen Leibovici and Linda Sloan
School Boards	Edmonton Catholic School District, Edmonton Public Schools, A Community Knowledge Campus Assessment was conducted with the Big Lake ASP Amendment
Non-profit organizations	<i>Private non-profit group</i> <i>Private non-profit group</i>
Utility providers	<i>Private – Corporate</i>
Adjacent neighbourhood planning	<i>Private – Corporate</i> <i>Private – Corporate</i>

Amended by editor



Land Use, Transportation, and Servicing Plan

3.0

3.1 Vision

Through the application of sound planning, design, and engineering principles, Starling will evolve into a recognized environmental community where residents feel connected to the natural world and develop a superior appreciation and respect for the major ecological significance of the greater Big Lake area.

3.2 Goals and Objectives

The illustrative concept included in this Starling NSP evolved from the findings and subsequent recommendations of an Ecological Design Report (EDR) completed concurrently with this Neighbourhood Structure Plan and submitted to the Planning and Development Department under separate cover. **(See Figure 6)** The land use concept, its goals and objectives were established on the basis of the opportunities and constraints presented through this Ecological Design Report process. These goals and objectives shaped the design of Starling and informed the preliminary engineering. Goals in this neighbourhood may be classed under five primary categories, as follows:

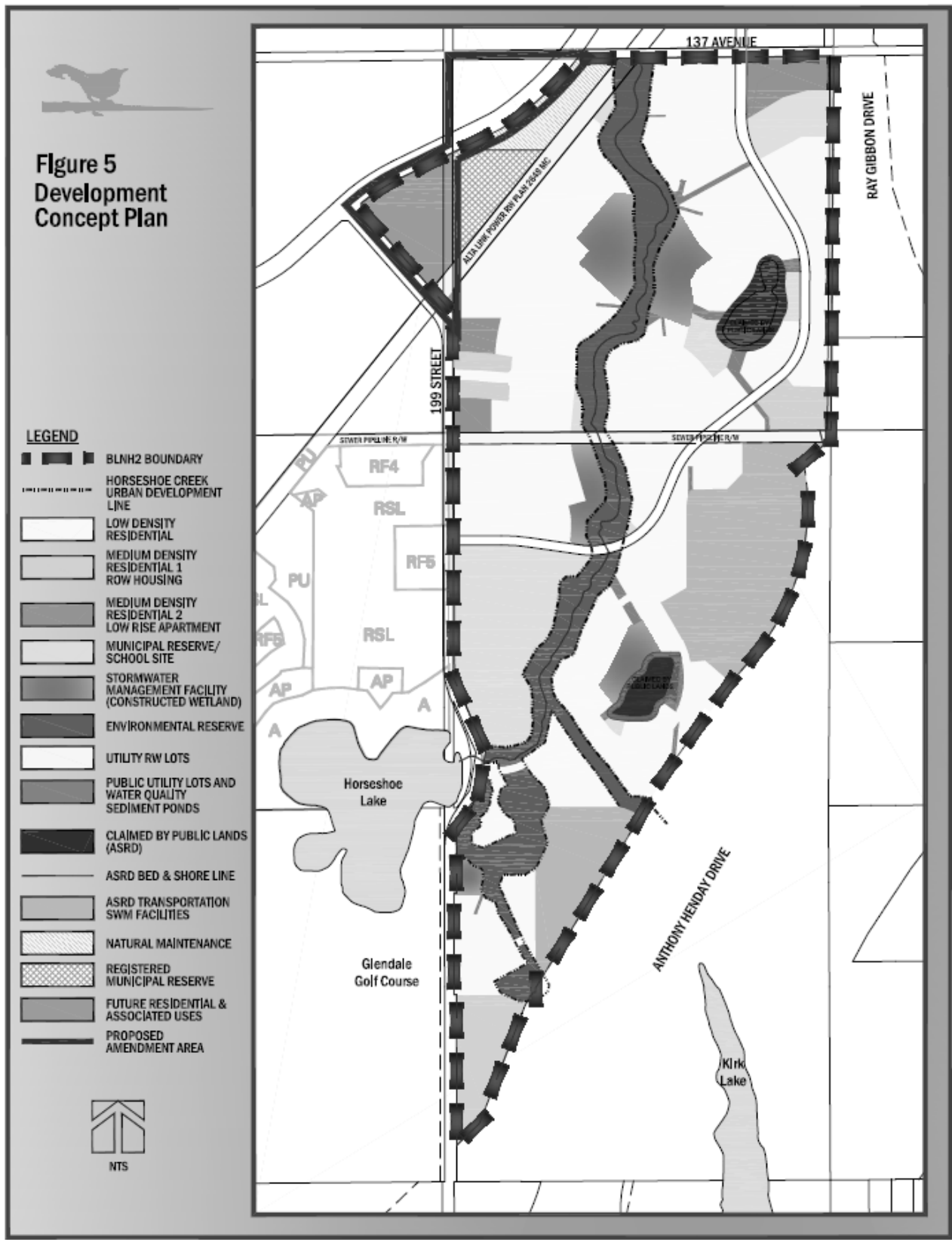
1. Environmental Preservation and Enhancement

- Maintain Water Quantity and Quality;
- Protect and restore the Horseshoe Creek corridor;
- Integrate other natural ecological features;
- Minimize Horseshoe Creek crossings; and
- Establish the top of bank lines and associated geotechnical stability.
- Maintain linkages and connect natural areas to the extent possible; and
- Encourage wildlife movement.

2. Compact, Walkable Neighbourhood

- To provide for a mix of housing forms in character with surrounding neighbourhoods;
- To locate medium density residential (MDR) with good access to, and in support of, public transit;
- To provide residents and visitors access to Horseshoe Creek;
- To promote pedestrian accessibility to parks, open spaces, and transit facilities; and
- To minimize walking distances by creating a pedestrian oriented street network and by providing walkways where roadway connection is not feasible.

Figure 5
Development
Concept Plan



3. Attractive, Liveable Community

- To create a transition between residential uses of different densities;
- To develop the MDR sites to a higher urban design standard;
- To establish suitable housing, where possible and feasible, in the Big Lake Neighbourhood for people with modest incomes; and
- To develop stormwater management facilities (SWMF) that are aesthetically pleasing and physically accessible to residents.

4. Create a balanced Transportation system

- Establish a safe and convenient alignment for internal roadways and external access;
- Encourage pedestrian activity by creating a variety of walkways;
- To avoid the development of long cul-de-sacs;
- To establish internal roadway connectivity and/or walkway connectivity;
- To provide Public transit services within the plan area in accordance with City of Edmonton Transit System Guidelines and demands;
- To promote alternate modes of transportation—pedestrian, bicycle, rollerblade, wheelchair—within the transportation network;
- To provide public access to Horseshoe Creek; and
- To provide inter-connected neighbourhood access to Horseshoe Creek.

5. Infrastructure Provision

- To ensure that the Big Lake neighbourhood is serviced to a full urban standard;
- minimize servicing infrastructure;
- incorporate low impact development (LID) standards to the extent possible;
- To develop stormwater management facilities (SWMF) that function as naturalized constructed wetland stormwater management facilities;
- minimize grading; and
- sequence phasing of development logically.

Land Use Concept and Population Statistics

The Big Lake Neighbourhood is intended for low and medium density residential and parks and open space development as illustrated in **Figure 5 – Development Concept Plan** and described in the table below.

Table 5 – Population Statistics *Bylaw 16068 – May 10, 2013*

STARLING NEIGHBOURHOOD STRUCTURE PLAN LAND USE AND POPULATION STATISTICS

	Area (ha)	% of GA
GROSS AREA	132.07	100.0%
Environmental Reserve	14.84	11.24%
Transportation Utility Corridor (TUC)	14.59	11.05%
AltaLink Management R/W	2.20	1.67%
Sewer Pipeline	1.97	1.49%
199 Street Road Widening 24m	0.19	0.14%
199 Street Realignment Dedication	0.55	0.42%
Retained Natural Wetlands (2)	2.90	2.19%
Subtotal	37.24	28.20%
GROSS DEVELOPABLE AREA	94.83	100.0%
Parkland, Recreation, School (Municipal Reserve)		
School Site	8.00	8.4%
Parks/Municipal reserve *	2.04	2.2%
Registered Municipal Reserve	2.38	2.5%
Transportation		
Circulation	13.91	14.7%
Infrastructure / Servicing		
Stormwater Management Facilities (5)	5.97	6.3%
PUL/Water Quality Sediment Ponds	1.76	1.9%
Special Use (Natural Maintenance)	2.38	2.5%
TOTAL Non-Residential Area	36.44	38.5%
Net Residential Area (NRA)	58.39	61.5%

RESIDENTIAL LAND USE AREA, UNIT & POPULATION COUNT						
Land Use	Area (ha)	Units/ha	Units	People/Unit	Population	% of NRA
Low Density Residential (LDR)						
Single/Semi-Detached	46.23	25	1,156	2.8	3,237	79.17%
Medium Density Residential (MDR)						
Row Housing	6.5	45	293	2.8	820	11.13%
Low-rise/Medium Density Housing	2.94	90	265	1.8	476	5.03%
Future Res. & Assoc. Uses (Low Rise)	2.75	90	248	1.8	446	4.71%
Total Residential	58.42		1,962		4,979	100.0%

*The total area of the Future Residential and Associated Uses site is 3.43 ha. An estimated land use breakdown of this designation is 10% municipal reserve, 10% public utilities, and 80% medium density residential (low rise apartments) until such time as a future NSP amendment plans this site in greater detail.

SUSTAINABILITY MEASURES

Population Per Net Hectare (ppnha)	85.27
Units Per Net Residential Hectare (upnrha)	33.6
[Single/Semi-Detached] / [Low-rise/Multi-/Medium Units] Unit Ratio	59% / 41%
Population (%) within 500m of Parkland	100.0%
Population (%) within 400m of Transit service	100.0%
Population (%) within 600m of Commercial service	68.0%

Presence/Loss of Natural Area Features=All existing natural features are retained.

Protected as Environmental Reserve (ha) =14.84 ha

Conserved as naturalized Municipal Reserve (ha) =7.66 ha (Retained Nat. Wetlands, Nat Maintenance, Exist MR)

Protected through other means (please specify) (ha) =32.36 (TUC, SWMF, multiple man-made SWMF adjacent to Top-of-bank, School, and Park)

Lost to Development (ha) =0 ha

*Note: For purposes of Municipal Reserve, Lot A, B, & C, Plan 1456RS has already given up their Municipal Reserve. Municipal Reserve required is 7.10 ha.

For purposes of the Capital Region Board Net Density is 33.6 upnrha (based on 1,962 units divided by 58.39 hectares of Net Residential Area).

STUDENT GENERATION COUNT		
Public School Board		380
Elementary School	190	
Junior / Senior High School	190	
Separate School Board		152
Elementary School	76	
Junior High School	38	
Senior High School	38	
Total Student Population		532

Figure 6
Illustrative
Concept



BLNH2 BOUNDARY



3.4 Policy

This section provides an overview of the requirements and policies necessary for the implementation of goals and objectives listed in the previous section.

3.4.1 Ecology

As a result of a thorough on site investigation and engineering and environmental innovations proposed through the Starling Ecological Design Report process, the approval of this Neighbourhood Structure Plan will ensure that the Horseshoe Creek corridor is maintained and protected to the greatest extent possible as a natural area. For the parcels that are to be retained as natural areas, *defined in this Plan as the two Crown claimed wetlands, vegetated MR parcels and the Horseshoe Creek corridor*, no rezoning or subdivision of lands within 200 m of the natural areas will be permitted until an approved Natural Area Management Plan is in place to ensure conservation and adequate protection of the natural areas. **Table 6** provides a summary of technical and engineering investigations for the original Plan area .

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Amended
by editor

Table 6 – Summary of On-Site Investigation		
Consultant	Type of Investigation	Date Completed
Private – Corporate	Environmental assessment and planning	June 2007
	Historical Air Photo Review	August 2007
	Wetland Value and Function Assessment	December 2007
	Preliminary Biological Resource Assessment	December 2007
	Fish and Fish Habitat Assessment	December 2007
Private – Corporate, Private – Corporate, Private – Corporate, Private – Corporate, Private – Corporate	Walked top-of-bank walk	Summer 2007
Private – Corporate	Historical Resources Assessment	October 2007
Private – Corporate	Existing Topography and Perimeter Survey	Summer 2008
Private – Corporate	Traffic Impact Assessment	May 2010 2009
Private – Corporate, Private – Corporate, Private – Corporate	Geotechnical investigation	January 2008
Private – Corporate	Preliminary engineering, water network analysis, Neighbourhood Design Report.	Jan 2008-May 2010
Private – Corporate	Ecological Design Report, Neighbourhood Structure Plan, landscape architecture	
Private – Corporate		

Amended by editor

Key ecological objectives included in the Plan are to:

- Maintain significant existing natural vegetation that currently protects a system of core biodiversity areas so these areas can continue to support populations of plants and animals and associated ecological processes;
- Maintain and expand the Horseshoe Creek corridors for wildlife movement to the extent possible;

- Maintain connectivity for the movement of key species among the significant habitat areas, i.e. linkages;
- Incorporate elements of native species throughout the proposed development to facilitate movement within;
- Establish ecologically friendly connections between the natural areas and development that enhance the characteristics of both;
- Incorporate native landscape elements into parks, road rights of way and stormwater management facilities; and
- Restore and enhance natural areas disturbed by agricultural activities.

Ecological Objectives

Objective	NSP Policy	Implementation
3.4.1.1 Protect the Horseshoe Creek corridor by establishing an Urban Development Line, based upon geotechnical recommendations and current City Policy.	3.4.1.1 The Urban Development Line (UDL) that defines the boundary between developable and non-developable (Environmental Reserve) lands is based on geotechnical investigations of bank and upland stability. The public upland area defined by the crest of the ravine and the UDL is equal to or greater than 10 metres and includes all land that could be considered potentially unstable, as determined by geotechnical analysis.	3.4.1.1 The Horseshoe Creek and the natural areas will be dedicated to the City of Edmonton at the time of subdivision as Environmental Reserve (ER) as per the Municipal Government Act. A geotechnical report and flood plain analysis, detailing the required setbacks and other recommendations, to ensure bank stability for development planned within the overlay will be submitted prior to subdivision approval.
	3.4.1.2 A minimum setback of 10 m, or the setback recommendations of the geotechnical and slope stability analysis- whichever is greater - shall be provided. This area will provide public access for circulation	3.4.1.2 The Environmental Reserve designation will avoid environmental hazards, will protect the Horseshoe Creek ravine system and adjacent uplands from development, and will enable the creation of a continuous walkway system on both sides of the ravine along its entire length.
3.4.1.3 Provide a compact, integrated urban form that responsibly uses the land resources.	3.4.1.3 The development should support increased densities to make more efficient use of land. The development should be walkable, conducive to bicycles and integrated with transit facilities, to encourage alternatives to the automobile	3.4.1.3 The Neighbourhood is planned to respect the natural environment and encourage stewardship of the Big Lake Neighbourhood and also encourage a walkable pedestrian-oriented environment.

<p>3.4.1.4 Consider sustainable development principles in the planning and design of the development.</p>	<p>3.4.1.4 Implement design techniques and alternate technologies that are more environmentally friendly.</p> <p>Site planning and building construction will utilize a low impact design philosophy, reducing the use of materials and energy, and reducing waste wherever possible.</p>	<p>3.4.1.4 If practicable and feasible, consideration of modified roadway cross sections, low impact development servicing techniques, and infrastructure provision that diverge from City of Edmonton standards may be implemented.</p> <p>All proposed design measures that are not to current City of Edmonton Standards must be reviewed and approved by the City at zoning stage of development.</p> <p>All building forms will consider the equivalent of green standards under certification programs such as LEED NC, Built Green R-2000 or other applicable programs and technologies available at time of construction. Other energy reducing initiatives, such as solar-ready, xeriscaping, green roofs and rainwater harvesting will be encouraged</p>
<p>3.4.1.5 Provide sustainable and cost effective landscape development of the open space areas over the long term with the use of native plant species and the added benefit of the re-establishment of natural habitat.</p>	<p>3.4.1.5 Landscaping in the neighbourhood should encourage the use of native plant species within all open spaces and stormwater management facilities.</p>	<p>3.4.1.5 Specific species for landscaping shall be determined between the developer and City Administration at the time of review of landscaping plans as part of Engineering Drawing or Development Permit review.</p>
<p>3.4.1.6 To ensure that all natural Area (wetlands, vegetated MR parcels and the Horseshoe Creek Corridor) are protected and retained.</p>	<p>3.4.1.6 Natural Areas (features) have been outlined and identified.</p>	<p>3.4.1.6 No rezoning or subdivision of lands within 200 m of these identified areas will be permitted until an approved Natural Area Management Plan is in place.</p> <p>That the <i>private non-profit group</i>, <i>private non-profit group 2</i> and other stakeholders be provided with an opportunity to review the technical reports submitted in support of the Natural Area Management Plan, prior to approval.</p>

Rationale

Starling contains important ecological resources and has natural connections that have a broader regional significance. Horseshoe Creek runs through the centre of the Plan area and provides both hydrological and terrestrial connections between Horseshoe Lake to the west, Kirk Lake to the south and Big Lake to the north. The design of Neighbourhood Two recognizes the value of these connections between natural areas and their surroundings and understands that this connectivity is inherent to maintaining the greater ecological network in the vicinity of Big Lake. The corridor is protected and preserved as per the Municipal Government Act (MGA), Municipal Development Plan (MDP) and City policies.

3.4.2 Environmental Considerations

The Open Space Matrix

The design of Starling integrates the existing natural features and respects its ecological context. This is especially fitting given the neighbourhood's proximity to and connections with Big Lake and the Lois Hole Centennial Provincial Park. Starling is primarily a residential community but it proposes a larger percentage and more diverse range of parks and open spaces than typical suburban communities. The irregular shape of the existing Horseshoe Creek corridor, the natural areas and multiple stormwater management facilities defines a range of larger and smaller development modules in the Plan area. The unusual shape and location of some of these secluded modules create unique opportunities for innovative low and medium density housing forms in the Plan area. Residential nodes are also defined in the development concept by the collector road system and the expansive parks and open space system.

In total, the public realm of parks, open space and natural areas in Starling comprises an unprecedented 50 percent of the total neighbourhood area and integrates a full range of open space types from natural areas to formal recreation sites. These public open spaces will enable human appreciation of the natural areas while protecting the integrity of these natural areas.

The system of upland and wetland natural areas, along with other open spaces defines a green matrix that forms a sequence of distinct residential areas close to nature. All residential areas will be within 200 metres of some element of the parks and open space system. The location of the proposed school site in the south Plan area provides an environmentally friendly link to Horseshoe Lake and areas further west through Big Lake Neighbourhood One. The school site is purposely located to create a more natural "bridge" east from Horseshoe Lake to the Horseshoe Creek corridor. In addition, proposed top of bank walkways will extend north to provide direct pedestrian linkages towards the north and northwest Plan area and Lois Hole Centennial Provincial Park. Additional walkways created through a combination of on-sidewalk and public utility lots will also connect the Starling community to the school site, the parks and the top of bank.

Horseshoe Creek Corridor

The Horseshoe Creek corridor, as it extends from south to north, approximately bisects the neighbourhood, creating two distinct precincts. While it divides, it also provides a unifying landscape feature that will be accessible to all residents. This open space corridor will be the opportunity for a top of bank walkway to extend throughout the length of the neighbourhood, with lateral extensions to the interior of the neighbourhood. All available implementation approaches have been used to maximize the width of the corridor so that its' hydrological, wildlife and human mobility and appreciation functions are maintained.

- a basic corridor defined by a 10 m setback from the top of bank line defines the Environmental Reserve. This corridor will maintain and protect the existing biotic diversity of the ravine.
- with an interest in increasing the value and diversity of the Horseshoe Creek corridor for wildlife and reducing grading to the extent possible, a series of naturalized constructed wetland stormwater management facilities have been designated in low areas near and parallel to the top of bank of Horseshoe Creek. Stormwater management facilities are required on both sides of the creek to maintain natural drainage patterns to Horseshoe Creek. Geotechnical investigations show that ground conditions appear to be suitable for the proposed use maintaining a stable ground environment at these locations.
- the designated school site on the west side of the upper reach of Horseshoe Creek will widen the corridor very substantially along about 527 metres of its west side. This location also provides a logical connection to Horseshoe Lake and greenways approved to the west in Big Lake Neighbourhood One.
- open space linkages will connect the corridor to the two retained wetlands in the interior of the residential areas, the major Anthony Henday stormwater management facilities and the 'natural maintenance' and municipal reserve area in the northwest corner of the neighbourhood.

*Bylaw 15988
Jan. 30, 2012*

With the expanse of open space available and the location of the stormwater management facilities adjacent to the top of bank, a mix of asphalt and granular trails may meander in and out of the Environmental Reserve and the Urban Development Line. Due to the narrowness of the secondary channels in the south Plan area and the fact that they exit onto Anthony Henday Drive, top of bank walk has been conceptually designated along the east side. The location and extent of top of bank walkway requirements in this area will be determined through the subdivision process. **(See Figure 7)**

Limited Roadway Crossing of Corridor

The integrity of the primary Horseshoe Creek corridor will be maintained by limiting the number of road crossings to one in the Plan area. **(See Figure 8)** The existing rural 137 Avenue road allowance currently crosses the Horseshoe Creek channel as it exits Starling at the north boundary. This existing crossing is outside of the Plan boundary but the Plan retains the westerly portions of this 137 Avenue road right of way as part of its future external access. Future access to Ray Gibbon Drive will not be allowed east from 137 Avenue.

The internal collector crossing is located in the southern portion of the plan area on the upper reach of the Creek, where the ravine is relatively shallow. This single crossing will provide minimum interference with wildlife movements and water flow.

A local roadway is also proposed to cross the secondary channel south of the school site at 199 Street. This local road is required to provide secondary access for the development module between Anthony Henday Drive and the Horseshoe Creek corridor in the southeast Plan area.

Environmental Impact Assessment

The North Saskatchewan River Valley Bylaw (NSRV Bylaw) requires that Environmental Impact Assessments (EIA) be completed to the satisfaction of the Office of Natural Areas prior to zoning approval and engineering drawing approval by the City of Edmonton. EIA's are required to ensure that recommendations of the NSRV Bylaw are incorporated into the detailed design of

outfalls to the Horseshoe Creek corridor. No rezoning shall occur within Neighbourhood Two until an EIA is reviewed.

Wetlands to be Retained

Both of the naturally occurring wetlands claimed by Alberta Sustainable Resource Development (ASDR) are identified and retained in the Plan area. The wetland area (approximately 1.98 hectares) claimed by ASDR in the northern Plan area is based on historical photos and so the boundary area claimed by ASDR and shown on the Plan does not coincide with the edge of the wetland as it exists today. This larger wetland in the northeast plan area has been disturbed by agricultural activity and has a well defined boundary as a result of cultivation to its edge. During the initial on site review of the wetlands with Alberta Sustainable Resource Development they did acknowledge that the northern wetland had been disturbed over time and stated that modifications to the form and shape of the wetland would be considered if it enhanced the wetlands potential.

Since that time the claimed boundary has been staked and reviewed with Office of Natural Environment and Planning and Development and it has been agreed in principle that the environmental reserve buffer that would normally be required in addition to the claimed area is already adequately accommodated in the historical boundary claimed by the Province and no additional environmental reserve will be required on the northern wetland.

The boundary has been reshaped to allow for the re-establishment of a riparian buffer around the perimeter and also to ensure that a direct and uninterrupted link continues west to the Horseshoe Creek corridor. The other smaller wetland exists between the two Anthony Henday Drive stormwater management facilities and south of the proposed alignment of the collector road crossing. Environmental Reserve is also designated on the perimeter of the south wetland. The environmental reserve buffers have been established in cooperation with Office of Natural Areas and Community Services.

Water Quality Sedimentation Ponds” are identified on the Land Use Concept. These public utility areas will be utilized to maintain water quality by providing treatment before water enters the Provincial claimed wetlands and ultimately into Horseshoe Creek. The exact size and location of these sedimentation facilities may be modified through the detailed design process. Park and public utility lots areas will be confirmed through that subdivision and zoning process. Over 50 percent of the plan area is designated for parks and open space. The Neighbourhood Structure Plan proposes a school and park site, and several pocket parks designated to link natural area and preserve tree stands.

Phase 1 ESA's were submitted and approved by the City to confirm *the original Plan area* is suitable for the preparation of development.

Bylaw 15988
Jan. 30, 2012

Environmental Objectives

Objective	NSP Policy	Implementation
3.4.2.1 To ensure that the environmental status of the lands within the Big Lake Two neighbourhood boundary is suitable for residential development.	3.4.2.1 Determine the likelihood, types, and location of environmental concerns that may be present on the lands prior to rezoning.	3.4.2.1 ESAs and any follow-up will receive sign-off by the City administration prior to the rezoning stage of development.

	3.4.2.2 If necessary, contaminated material shall be removed and disposed of in an environmentally sensitive manner, in accordance with Federal, Provincial, and Municipal regulations.	3.4.2.2 Site remediation, where necessary, shall be conducted prior to rezoning. An environmental site assessment report verifying the remediation shall be submitted for approval by the City administration prior to the rezoning of the subject lands.
3.4.2.3 To ensure that Environmental Site Assessments are complete and up-to-date.	3.4.2.3 ESA Phase I reports older than 1 year from the date of rezoning application shall be updated, and any Phase I report older than 5 years from the date of rezoning application shall be redone.	3.4.2.3 Environmental Site Assessments will be submitted prior to rezoning.

Rationale

Lands within the neighbourhood boundary will be suitable for development and their environmental status confirmed prior to rezoning. Any lands identified as contaminated must undergo remediation according to Federal, Provincial, and Municipal standards.

Technical Summary

Phase I ESAs for the original Plan area were submitted and approved by the City of Edmonton in 2009 to confirm that the Plan area is free of contamination and therefore suitable for residential and other development. A Phase 1 ESA for NE¼-19-53-25-4 must be submitted and approved by the City in advance of any rezoning or subdivision approval.

*Bylaw 15988
Jan. 30, 2012*

3.4.3 Urban Design

The Starling Structure Plan incorporates the following relevant principles of urban design to establish a community that is attractive to future residents and supports the environment. These principles relate to:

Landscaping

- Proposed public and private spaces should complement and enhance the inherent natural elements of the area and feature high quality landscape architecture intended to create spaces that are comfortable and enjoyable;
- Native landscaping should be utilized to enhance the character of the buildings and create a positive relationship with the buildings;
- Public and private landscaping materials should be selected with the intention of attracting and retaining bird and butterfly species in the Plan area;
- Use of native, water loving species in small bioretention areas; and
- Detailed landscaping plans should be submitted at the development permit stage.

Built Form

- The architectural design of buildings should create local identity and character;
- The development should provide a transition in building height, massing, form, orientation, and landscaping in relation to the surrounding neighbourhoods and abutting medium density sites;
- Perceived height and massing should be minimized by utilizing variations in building setback variations at the upper levels, building orientation, roof treatment, and the choice of exterior materials and colours;
- Building façades should use compatible and harmonious exterior finishing materials, and building colours should provide visual interest;
- Building facades should incorporate treatments that ensure 360 degrees architecture; and
- Dwellings and other elements of the development should be sited and oriented to the extent possible to minimize their impact on other dwellings, considering such things as daylight, sunlight, ventilation, quietude, visual privacy, and views.

Circulation

- Safe and attractive pedestrian linkages should be provided, establishing connections within the site and with the surrounding areas;
- The circulation system should foster internal site connectivity, and connectivity to the adjacent neighbourhood and Lois Hole Centennial Provincial Park;
- Parking, loading, and passenger drop-off areas should be easily accessible and designed to minimize pedestrian-vehicle conflicts; and
- Potential traffic impacts on adjacent roadways resulting from the development should be mitigated.

Amenity Space

- Provide amenity space that is aggregated to function as useable space;
- Crime Prevention through Environmental Design should be considered in the design of amenity spaces. Pedestrian spaces should be well lit at night and designed to meet CPTED guidelines; and
- Amenity spaces should be distinct and separate from parking areas.

Green Design

The following landscape and engineering innovations and techniques may be explored through the Big Lake development process.

- Absorbent Landscapes;
- Permeable paving may be utilized in public park areas or on private property;
- Incorporation of floating islands within selected SWMF(s) to increase biomass and associated nutrient removal;
- Replacement of the underground storm system with a bioswale at selected locations to facilitate increased treatment during conveyance and promote greater evaporation and transpiration;

- Elimination of the underground storm system at selected locations adjacent to natural wetlands to increase the contact of runoff water with permeable surfaces; and
- Installation of vegetation areas around catch basin inlets or at bump-outs or other locations to provide some water quality improvement and create small ephemeral ponds as an alternative habitat suitable for birds and amphibians.

Innovations and techniques could be implemented in the form of a Pilot Project that would be monitored to evaluate success and determination of opportunities for improvement before implementation in future stages. The specific criteria and preliminary details for these environmental innovations will be provided in the NDR for the Starling.

Urban Design Objectives

Objective	NSP Policy	Implementation
3.4.3.1 To provide a transition between residential uses of significantly different densities.	3.4.3.1 MDR is incorporated to allow a wider range of housing forms	3.4.3.1 Provide transitions in height and massing between MDR and LDR.
3.4.3.2 Utilize landscape design to create distinctive areas within the neighbourhood to provide visual coherence.	3.4.3.2 Each residential cell will include distinctive architectural and landscape features and parkland components.	3.4.3.2 The Development Concept will guide the location of parks, bioretention areas, walkways and open spaces at the zoning and subdivision stage. Architectural guidelines may be established to define a theme throughout the community and to create a sense of place for its residents.
3.4.3.3 Create an entrance into the neighbourhood that identifies a sense of arrival and place.	3.4.3.3 Neighbourhood entrances should include signage and design features that distinguish entry into the plan area.	3.4.3.3 Entrance features and signage shall be developed in accordance with the Zoning Bylaw and applicable policies.
3.4.3.4 To provide a transition between residential uses of significantly different densities.	3.4.3.4 Variations in height and density will be incorporated appropriately to minimize transitions between MDR and LDR	3.4.3.4 Development Concept illustrates land use transitions.
3.4.3.5 Develop naturalized constructed wetland stormwater management facilities that are visually appealing and physically accessible to all residents.	3.4.3.5 The naturalized constructed wetland stormwater management facilities shall be designed to be safe to the public, accessible through public lands.	3.4.3.5 The location of the facilities are established prior to Plan adoption but the exact shape and size may be refined upon completion of more detailed engineering prior to rezoning. Design of the facilities should consider the safety of residents, opportunities for passive recreation

		and development of pedestrian walkways. This is to be outlined in the NSP and confirmed at the subdivision stage of development in conjunction with Asset Management, Public Works and Drainage Branches and the Transportation Department.
3.4.3.6 Site buildings to optimize and/or enhance public views and vistas of features such as Big Lake, Horseshoe Creek and the natural areas.	3.4.3.6 Site planning and design should take into consideration opportunities for maximizing public views and vistas of Big Lake, Horseshoe Creek and the natural areas.	3.4.3.6 The Development Officer should have regard for the placement of buildings relative to maintaining public views and vistas where opportunities may occur.
3.4.3.7 To develop SWMFs that are visually appealing and physically accessible to residents.	3.4.3.7 The SWMFs shall be designed using CPTED principles, accessible through public lands, and not land-locked by private development.	3.4.3.7 The design of SWMFs is established prior to Plan adoption and may be refined.

Rationale

The expansive open space and natural amenity in the Plan creates unique urban design opportunities in Starling. The irregular shape of the existing Horseshoe Creek corridor, the natural areas and multiple stormwater management facilities defines a range of larger and smaller residential development modules in the Plan area. The unusual shape and location of some of these secluded modules are ideal locations for more innovative low and medium density developments.

3.4.4 Residential

The irregular shape of the existing Horseshoe Creek corridor, the natural areas and multiple stormwater management facilities defines a range of larger and smaller residential development modules in the Plan area. The unusual shape and location of some of these secluded modules create unique opportunities for innovative low and medium density housing forms in the Plan area. Residential nodes are also defined in the development concept by the collector road system and the expansive parks and open space system. The majority of the Plan area is designated for residential land use which includes opportunities for a variety of low and medium density housing forms currently in demand in Edmonton. Approximately 56.26 hectares of the Plan area is designated for residential land use in Starling.

Approximately 46.23 ha of the plan area is designated as Low Density Residential (LDR) which will allow for the development of single detached and semi-detached housing at a density of approximately 25 units per ha.

*Bylaw 16068
May 10, 2013*

Approximately 6.50 ha of the plan area is designated as medium density residential 1 (MDR1).

Approximately 2.94 ha of the plan area is designated as medium density residential 2 (MDR2).

Approximately 3.43 ha of the Plan area are designated as Future Residential and Associated Uses. It is estimated that 80% or 2.75 ha of these lands will be developed as 4 storey apartments with an anticipated density of 90 units per ha. The balance (20% or 0.69 ha) is estimated to accommodate Municipal Reserve and public utilities to support the apartment development. More information on this designation is provided below.

Bylaw 15988
Jan. 30, 2012

Future Residential and Associated Uses

The Future Residential and Associated Uses designation for a site in the northwest corner of the Plan area is intended to be an interim and generalized land use designation. This is in recognition that the affected landowner is not yet prepared to undertake detailed planning for this site. However, the designation provides the landowner or future developer an increased level of certainty that the subject lands will be considered by the City of Edmonton for residential expansion. Prior to rezoning and subdivision of this site, a NSP amendment for the site is required to layout the configuration of residential and associated uses to be developed. Further detailed studies (i.e., traffic impact assessments, drainage reports, etc.) will also be required.

Due to the triangular configuration and topographic nature of the affected site, the residential component of this designation may accommodate low rise apartments or other forms of medium density residential development. As a result, the residential density of this site will meet the density targets assigned by the Capital Region Board to this portion of Edmonton.

Access to the development will be directly from the future realignment of 199 Street at a setback from the future 215 Street/137 Avenue arterial road to the satisfaction of Transportation Services.

The Future Residential and Associated Uses designation does not include an opportunity to develop any type of commercial uses to support the future residential development, the overall neighbourhood, or the greater Big Lake area. Such a development proposal would necessitate ASP and NSP amendments with sufficient rationale to support the redesignation of land for commercial uses within this site. Other non-residential uses, such as those prescribed in the Urban Services Zone of the Edmonton Zoning Bylaw (libraries, churches, community centres, etc.) would also necessitate ASP and NSP amendments.

As the Future Residential and Associated Uses site is adjacent to a regional power corridor, the more detailed planning at the future NSP amendment stage shall require consultation with AltaLink on any applicable setback requirements or any additional right-of-way requirements. This will ensure these facilities are protected from incompatible development and that additional land for regional infrastructure is identified, if necessary."

Suburban Housing Mix Ratio

The approved suburban housing mix ratio for new neighbourhoods in the City of Edmonton currently recommends the provision of 65% to 85% low density residential development and 15% to 35% medium density residential development. The Capital Region Board has recently set new higher density targets for development within the Capital Region. *The density in Starling is 33.6 units per net hectare (upnha). The Starling NSP exceeds the Suburban Housing Mix and proposes a ratio of 59% low density residential to 41% medium density residential.* It also supports the use of transit, innovative design and helps manage the constant demand for housing in the City's growing suburban neighbourhoods.

Bylaw 16087
May 10, 2013

Residential Objectives

Objective	NSP Policy	Implementation
3.4.4.1 To locate medium density residential development with good access to, and in support of, public transit facilities.	3.4.4.1 MDR parcels should be located abutting collector roadways and transit routes. MDR development should be located within walking distance of public transit facilities.	3.4.4.1 The Land Use Concept will guide the MDR development to be located at the edge of the neighbourhood, at neighbourhood entrances, and along collector and arterial roadways (along possible transit routes).
3.4.4.2 To establish affordable housing in the Big Lake Neighbourhood.	3.4.4.2 a) When the City has an approved policy for affordable housing, it shall apply to this bylaw if the area has not been rezoned for development.	3.4.4.2 a) When adopted, City's affordable housing policy will be applied to Big Lake development prior to rezoning.
	3.4.4.2 b) The Neighbourhood Structure Plan proposes a wide variety of housing types—with a wide range of prices—to make it a more inclusive neighbourhood.	3.4.4.2 b) The Land Use Concept will guide the different types of residential land use designations.
	3.4.4.2 c) Expanded opportunities for secondary suites development in low density residential structures shall be pursued through the Edmonton Zoning Bylaw for the Big Lake Neighbourhood Structure Plan.	3.4.4.2 c) Should City Administration advance amendments to the Zoning Bylaw to expand opportunities for secondary suites in low density residential land use zones to City Council before 2010 Big Lake Neighbourhood Structure Plan would consider them.
3.4.4.3 Establish increased residential densities in support of Neighbourhood intensification.	3.4.4.3 The Big Lake Neighbourhood Structure Plan exceeds the approved Suburban Housing Mix ratio for new neighbourhoods.	3.4.4.3 The Land Use Concept will guide Intensified suburban development.
3.4.4.4 Provide a range of housing densities, types and choices in a variety of physical forms to meet the needs of different age and income groups.	3.4.4.4 A variety of housing choices will be supported to provide a more compact and comprehensive neighbourhood. A mix of low and medium density residential uses are provided, allowing consumer choice, and a range of affordability options.	3.4.4.4 Concept illustrates the various land use designations.
3.4.4.5 To provide opportunities for higher density housing at accessible locations, near open space and transit routes.	3.4.4.5 MDR parcels should be located abutting arterial and/or collector roadways and along future transit routes.	3.4.4.5 Development Concept will guide the MDR development to be located at the edge of the neighbourhood, at entrances, close to neighbourhood focal points, and along collector and arterial roadways (along possible transit routes).

3.4.4.6 To establish affordable housing in the Starling NSP.	3.4.4.6 When the City has an approved policy for affordable housing, it shall apply to this bylaw if the area has not been rezoned for development.	3.4.4.6 When adopted, the City's affordable housing policy will be applied to Big Lake Neighbourhood Three. Development Concept will guide the different types of residential land use designations.
3.4.4.7 Create a walkable community.	3.4.4.7 Utilize walkable community principles, comprising higher residential densities, mix of land uses and superior public space.	3.4.4.7 Land Use Concept conceptually guides the development of residential and mixed use land uses and the location of public spaces.
3.4.4.8 Establish increased residential densities in support of neighbourhood intensification	3.4.4.8 The Big Lake Neighbourhood Three NSP is designed to exceed the approved Suburban Housing Mix ratio for new neighbourhoods.	3.4.4.8 Land Use Concept will guide intensified suburban development.

3.4.5 Schools, Parks and Open Space

The Starling NSP recognizes the Parkland Classification System identified in The Urban Parks Management Plan (UPMP), adopted by City Council in August 2006. The NSP identifies parks, schools, natural areas and greenways within the NSP as per the Parkland Classification System, and validates their location, size and design relative to the policies in the UPMP.

The system of upland and wetland natural areas, along with other open spaces defines a green matrix in Starling that forms a sequence of distinct development areas close to nature. All residential areas will be within 200 meters of some element of the parks and open space system. The unique landscape opportunities created with the combination of Horseshoe Creek, the naturalized constructed wetland stormwater management facilities and the retained natural areas will establish interesting and diverse walkway experiences for residents and create habitat for smaller wildlife. A variety of asphalt and granular walkways are proposed to meander in and out of the environmental reserve, public utility lots (SWMF's), municipal reserve, natural wetlands and central corridor area. These complementary municipal reserve areas create a diversity and abundance of habitat elements that can be utilized by a variety of wildlife and bird species.

Parks and Open Space in Starling consist of a complementary combination of features that include both natural and manmade elements. Parks and open space system comprises the following elements:

Ravine Park (UPMP-5.2.1)

A central open space/natural area corridor including the ravine and adjacent uplands of Horseshoe Creek.

School & Community Park (UPMP- 5.2.4.1)

A school and community park site, approximately 8.0 hectares in size, is located in the southwest portion of the neighbourhood. The boundary and area of the school site is clearly defined by 199 Street road and environmental reserve. The location of the school has been chosen specifically to create a green bridge to link Horseshoe Lake across 199 Street to Horseshoe Creek in

Starling. The site will accommodate a future a Public and Separate Elementary / Junior High school. The development (timing) of the school is dependent upon available funding and need (i.e. a threshold of school aged population being present in the neighbourhood).

Natural Areas (UPMP-5.2.5)

- As outlined in the currently approved Bylaw 9878, an area currently designated “natural maintenance” may potentially be developed as low density residential. Should this area be considered for any use other than ‘natural maintenance”, a NSP amendment and rezoning application to authorize a change in land use would be required.
- Two pre-existing wetlands claimed by the Province of Alberta under Section 3 of the Public Lands Act ;
- *A triangular area of treed land is located in the northwest corner of the Plan. The 10% Municipal Reserve owing for the adjacent portion of NE¼-19-53-25-4 designated Future Residential and Associated Uses to the west may be dedicated adjacent to the triangular area to enhance and protect this natural area.;*
- Five new naturalized constructed wetland stormwater management facilities to be located in close proximity to Horseshoe Creek; and
- Two existing provincial stormwater management facilities.

*Bylaw 15988
Jan. 30, 2012*

Green Ways (UPMP – 5.2.6)

- Open space links between the Horseshoe Creek corridor and these wetlands
- Existing pipeline corridors

The Starling includes a number of parks ranging from 0.05 ha to 0.81 ha in size.

Schools, Parks and Open Space Objectives

Objective	NSP Policy	Implementation
3.4.5.1 Provide a variety of parkland and open spaces to support passive and active recreation, and promote wellness.	3.4.5.1 Municipal Reserves (MR) owing for the Starling shall be dedicated in full as land, money-in-lieu, or an acceptable combination thereof. <i>MR owing for the portion of NE¼-19-53-25-4 may be dedicated as land to expand the adjacent triangular MR parcel to enhance and protect this natural area. (Bylaw 15988 Jan. 30, 2012)</i>	3.4.5.1 The parks and open spaces identified in the Land Use Concept will be dedicated to the City of Edmonton as Municipal Reserve (MR) at the time of subdivision. <i>The dedication of MR to expand the triangular MR parcel in the northwest corner of the Plan area will be reviewed at the future NSP amendment stage that undertakes detailed planning for those lands designated Future Residential and Associated Uses. (Bylaw 15988 Jan. 30, 2012)</i>
3.4.5.2 Establish dispersed park spaces within the neighbourhood, through dedication of municipal reserves, to provide opportunities for passive and active recreation for residents.	3.4.5.2 Ensure a balanced spatial distribution of neighbourhood parks and open spaces. Every housing unit within the Neighbourhood Structure Plan boundary should be with 200m walking distance from a park or open space.	3.4.5.2 The Land Use Concept and Pedestrian Linkages will guide future application of neighbourhood parks and open spaces.
3.4.5.3 Preserve and integrate natural areas into the plan area where sustainable and economically viable.	3.4.5.3 The Neighbourhood Structure Plan preserves the natural areas along the Horseshoe Creek through Environmental Reserve (ER) dedication according to Top-of-Bank Policy C542.	3.4.5.3 The Land Use Concept and Pedestrian Network will guide future application of neighbourhood parks and open spaces. The specific location and configuration of these areas will be determined during the subdivision and rezoning stage based on geotechnical and flood plain analysis.
3.4.5.4 Provide a straightforward and understandable configuration of open spaces, greenways, school/park sites and walkway connections.	3.4.5.4 The NSP shall follow the guidelines for the hierarchy and distribution of park spaces as prescribed within the UPMP. All park spaces shall be connected to the trail network system within the neighbourhood.	3.4.5.4 The parks and open spaces identified in the Development Concept will be dedicated to the City of Edmonton as Municipal Reserve (MR) at the time of subdivision.

3.4.5.5 Provide opportunities for passive and active recreation for all users.	3.4.5.5 Neighbourhood parks and open spaces will be evenly distributed throughout the neighbourhood. Every housing unit within the NSP boundary will be within 200 m walking distance of a park or natural area.	3.4.5.5 Development Concept and Trail Network will conceptually guide future application of neighbourhood parks and open spaces.
3.4.5.6 Design park spaces to meet the needs of all users within the community.	3.4.5.6 Park space should be designed to accommodate active and passive recreation activities for various age groups. With the exception of park areas adjacent to top-of-bank where grade changes and topography pose design constraints, all park space within the neighbourhood should be accessible.	3.4.5.6 Design and development of future parks and open spaces shall consider programming needs of the community and be implemented based on requirements of Asset Management and Public Works Parks Branch.
3.4.5.7 Provide a site for a school within the community.	3.4.5.7 Provide a Municipal Reserve site for a school.	3.4.5.7 Development Concept identifies the location of the Starling school site.
3.4.5.8 Design safe park space, in accordance with the Design Guide for a Safer City and UPMP.	3.4.5.8 Park space should have frontage along public roadways to ensure sightlines, natural surveillance, and adequate lighting. Landscaping and design of park spaces shall take into consideration basic CPTED principles and design principles included in the Design Guide for Safer City and UPMP.	3.4.5.8 Design and development of future parks and open spaces shall consider safety needs of the community and be implemented based on the requirements of Asset Management and Public Works Parks Branch.
3.4.5.9 Design a connected and integrated open space system that encourages active modes of movement (e.g. pedestrians and bicycles).	3.4.5.9 Starling shall incorporate various pedestrian linkages along sidewalks, walkways, greenways and multi-use trail corridors that link all park spaces and stormwater facilities.	3.4.5.9 Development Concept and Trail Network will guide future application of neighbourhood parks, open spaces and pedestrian connections.
3.4.5.10 Design greenways and walkway connections to complement on-street sidewalk routes and connections.	3.4.5.10 The design of the trail network within the neighbourhood should avoid duplication between sidewalk connections, yet maintain off-street connections for major linkages through the neighbourhood.	3.4.5.10 Development Concept and Trail Network will guide future application of neighbourhood parks, open spaces and pedestrian connections.

Rationale

As the plan area abuts Horseshoe Creek, it is important to preserve the corridor and ensure compatible natural areas are carefully integrated where feasible. The Starling NSP provides a

range of parks and open spaces aimed at both respecting the significant ecological nature of this community and meeting the resident's recreational needs.

Dispersed park sites, assembled as MR, provides for the retention of existing natural areas and maintain connections between natural areas. These natural connections also create passive recreation space for residents at the local level.

3.4.6 Transportation

Even though the transportation network within Starling is based on vehicular and pedestrian circulation, the transportation system has been strongly influenced by the desire to respect and protect ecological and wildlife linkages. The hierarchy of existing and proposed collector roadways and local roadways has been designed to accommodate projected internal and external traffic flow requirements and minimize impacts to natural areas. For example, only one new road crossing is proposed across the primary channel of Horseshoe Creek in the south Plan area. One additional access crosses the secondary channel in the south Plan area. This local road access to 199 Street is required to provide secondary access for the development module between Anthony Henday Drive and the Horseshoe Creek corridor.

The existing transportation utility corridor, Anthony Henday Drive, (TUC) borders the area to the southeast, with the right-of-way for Ray Gibbon Drive extending north from the TUC along the east side of Starling. Some land uses in the southern Plan are designated on lands presently held under title by the Crown. These lands cannot be developed or offered for sale unless the Provincial Cabinet removes them, by Order in Council, from the Restricted Development Area (RDA). This area is outlined in a red hatch on **Figure 8**, requires Ministerial approval before these lands can be sold or purchased.

The existing 137 Avenue and 199 Street rights-of-way border the neighbourhood on the north and west, while a future arterial road (215 Street/137 Avenue) and 199 Street extension comprise its northwest border between the two existing rights-of-way. Although surrounded by existing and future roadway facilities, access to Starling will primarily be provided via multiple accesses from the 199 Street collector roadways. The majority of the existing 137 Avenue right of way will be maintained and the roadway will be upgraded, providing access to the new 215 Street/137 Avenue arterial alignment from the northeast portion of the neighbourhood. As well, a collector connection is anticipated to be provided to the future 215 Street/137 Avenue arterial through the adjacent neighbourhood to the north. Access to Starling will not be allowed directly from the Anthony Henday Drive or Ray Gibbon Drive.

*Bylaw 15988
Jan. 30, 2012*

The transportation network has been designed to meet current City of Edmonton's guidelines and standards. The collector roadway network provides efficient and convenient access to residential areas and is designed to discourage short-cutting traffic through the neighbourhood.

Starling falls within the Big Lake Arterial Roadway Assessment basin and Arterial Roadway Assessments will be owing with future subdivision and development of these lands.

Parking: Parking for vehicles will generally be provided off-street in conjunction with residential development applications.

Truck Routes: Ray Gibbon Drive and Anthony Henday Drive are designated as a truck route in the area.

Transit: Transit services will be extended into the Neighbourhood Structure Plan area in accordance with City of Edmonton Transit System Guidelines and demands. The developers of Starling will assist in funding transit service in the early stages of neighbourhood development prior to the area meeting the required threshold. The internal collector roadways will be developed to a suitable standard to accommodate transit service and provide readily accessible service to all areas of the neighbourhood. Therefore, the majority of the residential areas will be within 400 m walking distance from transit service. The School and Community Park in the central west portion of the Neighbourhood Structure Plan has been designed to ensure adequate school transit service by utilizing collector roadway access.

Pedestrian Network: An efficient and continuous walkway network connecting key nodes within the Neighbourhood Structure Plan will provide pedestrian circulation throughout the neighbourhood. All local and collector roadways in the Big Lake Neighbourhood will be developed with sidewalks providing a general level of pedestrian access within the Neighbourhood Structure Plan. An effort will be made by the City to explore alternatives with the Province and preserve and space for a grade-separated multi-use trail crossing of Anthony Henday Drive to facilitate access between Big Lake and the remainder of the City.

A top of bank walkway network comprised of asphalt walks, as shown on **Figure 7**, are proposed to extend along the entire corridor to ensure public access to the corridor and an interesting pedestrian experience. This top of bank network will extend into adjacent residential areas through a series of backshore walkway linkages to ensure neighbourhood, public and service access. There will be excellent access to and along the corridor. Points of public and emergency access to the corridor are generally located at a spacing of an average of 120 metres, as determined by the circumstances of the layout and the requirements for public utility lots. There are strong visual links and visual access to the ravine corridor from a number of roadways: from 137th Avenue on the north, the future collector on the east across the natural area, and across the proposed school site from 199th Street on the west;

Walkways: A complementary combination of top of bank trails, trails within pipeline and stormwater management facilities, on-street sidewalks and walkways are proposed in the plan area. These top of bank trails are proposed on both sides of the Creek and tie into multiple minor pedestrian connection provided to residential nodes. This variety of walkways will enhance pedestrian connectivity in the residential areas by establishing pedestrian connections to open spaces and transit. These walkways will also facilitate the movement of wildlife and increase the habitat potential. Linkages may be reassessed through the development process to ensure logical and adequate walkway connections are provided.

Greenways: The two pipeline corridors that traverse the Big Lake Neighbourhood Structure Plan create greenway opportunities in the neighbourhood, facilitate the movement of wildlife and increase the habitat potential. In addition to the asphalt trails proposed, these greenways may include grassed or naturalized planting, park furniture (e.g. benches, garbage receptacles), trees and shrub beds, and directional and interpretive signage. The level of development allowed on these greenways will be established with the City of Edmonton and the operator. A dedicated greenway is also provided to create an uninterrupted link between the Horseshoe Creek corridor and the retained natural area in the north Plan area.

Bicycle Circulation: Bicycle circulation within the Neighbourhood Structure Plan is designed to follow collector and local roadways within the neighbourhood area. Bicycle routes will be integrated with MUT corridors and walkways connecting internal and adjacent residential areas and amenities. Routes will be clearly marked using appropriate signage and markings in order to minimize potential conflicts between vehicles, cyclists, and pedestrians in the neighbourhood.

Noise Attenuation: A noise attenuation needs assessment for residential development adjacent to Anthony Henday Drive and Ray Gibbon Drive is required in accordance with the City of Edmonton's Urban Traffic Noise Policy. This policy requires that the developer either proves that projected noise levels in the outdoor amenity area will not exceed 60 dBA or constructs noise attenuation measures necessary to achieve this threshold.

Noise level evaluations will be carried out prior to subdivision at the design phase of the project to verify that future noise levels meet the 60 dBA objective. If the evaluation confirms that the 60 dBA objective will be exceeded, noise attenuation will be provided at these locations by the developer. At a minimum, the City's Transportation Department will require that a 1 m berm and a 1.8 m double board no-gap fence (min. density 20 kg/m³) be provided for all residential lots adjacent to Anthony Henday Drive and Ray Gibbon Drive.

Transportation Objectives

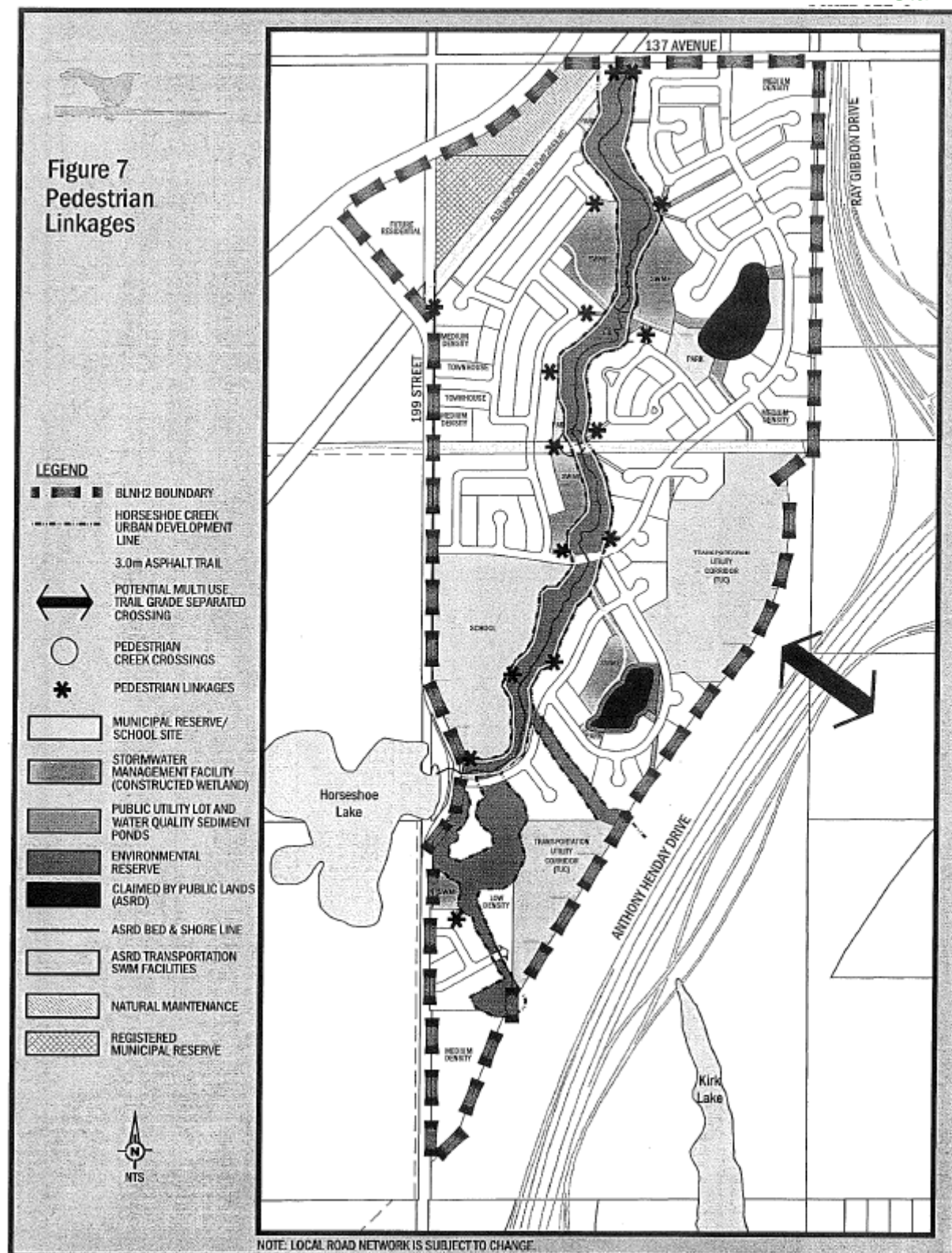
Objective	NSP Policy	Implementation
3.4.6.1 Implement the City of Edmonton road hierarchy system of an integrated arterial, collector and local roadway network.	3.4.6.1 A well-integrated system of arterial, collector and local roadways shall be established for vehicular and pedestrian circulation within the NSP boundaries and the adjacent neighbourhoods.	3.4.6.1 Road Right-of-Way and Arterial Road Widening shall be dedicated to the City of Edmonton in accordance with the NSP at the subdivision stage of development.
3.4.6.2 To ensure that a Top of Bank Roadway and Top-of Bank Walkway are provided.	3.4.6.2 As per Policy C542, a Top-of-Bank walkway along 100% of both sides of the main creek corridor and a minimum 30% of Top-of-Bank roadway will be provided.	3.4.6.2 At time of rezoning and subdivision, detailed alignments and locations will be finalized.
3.4.6.3 Mitigate the impact of vehicle traffic associated with MDR and Mixed-Use development on LDR areas.	3.4.6.3 Locate Mixed-Use and MDR parcels to facilitate access from arterial and collector roadways to the greatest extent possible.	3.4.6.3 The subdivision process will address the review of tentative plans to ensure MDR developed is accessed via abutting collector roadways, minimizing access via local roadways fronted by LDR development to the greatest extent possible. Access locations will be reviewed and approved by the Transportation Department with subdivision or development applications.

3.4.6.4 Avoid the development of long cul-de-sacs wherever possible.	3.4.6.4 Ensure the maximum length of cul-de-sacs in residential settings does not compromise City emergency response plans, operations and maintenance.	3.4.6.4 Cul-de-sac lengths in residential settings will be determined prior to subdivision approval.
3.4.6.5 Establish internal roadway connectivity and discourage the development of “exclusive” residential enclaves.	3.4.6.5 Ensure internal roadways have ample vehicular and pedestrian connections and form accessible residential developments where practical.	3.4.6.5 Subdivision design in residential settings will be determined prior to subdivision approval.
3.4.6.6 Create adequate locations for neighbourhood access by a variety of modes, such as automobiles, transit, bicycle and pedestrian connections.	3.4.6.6 Ensure that collector roadways have adequate access to arterial roadways in order to maintain appropriate traffic flow in and out of the neighbourhood. A network comprising of pedestrian linkages including greenways, walkways, sidewalks, multi use trails, and top-of-bank multi-use trail should be established where possible.	3.4.6.6 The transportation network illustrates collector roadway accesses to arterial roadways. Subdivision design in residential settings will be determined prior to subdivision approval.
3.4.6.7 Promote pedestrian accessibility to parks, open spaces, and future transit corridors.	3.4.6.7 Minor walkways should be provided to promote walkability and access to future transit corridors.	3.4.6.7 The Subdivision Officer should have regard for the dedication of walkways to promote walkability and appropriate access to future transit corridors.
3.4.6.8 Integrate land use and circulation patterns considering safety of both pedestrians and cyclists.	3.4.6.8 Ensure pedestrian crossings are safe, convenient and developed at visible locations.	3.4.6.8 Pedestrian crossings shall be identified at the subdivision approval and/or development permit stages.
3.4.6.9 Provide public access to Big Lake and the Horseshoe Creek corridor.	3.4.6.9 Access to Big Lake, Horseshoe Creek, and the natural areas shall be provided through an acceptable combination of top-of-bank multi-use trail (MUT), top-of-bank roadway, pedestrian access points and parks.	3.4.6.9 A public top of bank roadway is provided along slightly more than 30% of the Urban Development Line. The roadway lies above land used for municipal purposes, including Environmental Reserve, Municipal Reserve or stormwater management facilities designated as Public Utility Lots

3.4.6.10 Provide public transit stops within 400 m walking distance from all residences and schools.	3.4.6.10 Ensure the location of all residential land uses are within 400 m of a transit route.	3.4.6.10 Future transit routes will be developed on collector roads within and around the neighbourhood.
3.4.6.11 Initiate transit service in the initial stages of development of the neighbourhood.	3.4.6.11 Encourage the landowner to provide developer funded transit at the initial stages of development.	3.4.6.11 The Developer will assist in funding transit in the initial stages of development in conjunction with the developer of Neighbourhood 1 and will negotiate with the Transportation Department as to the timing and amount of funding support.

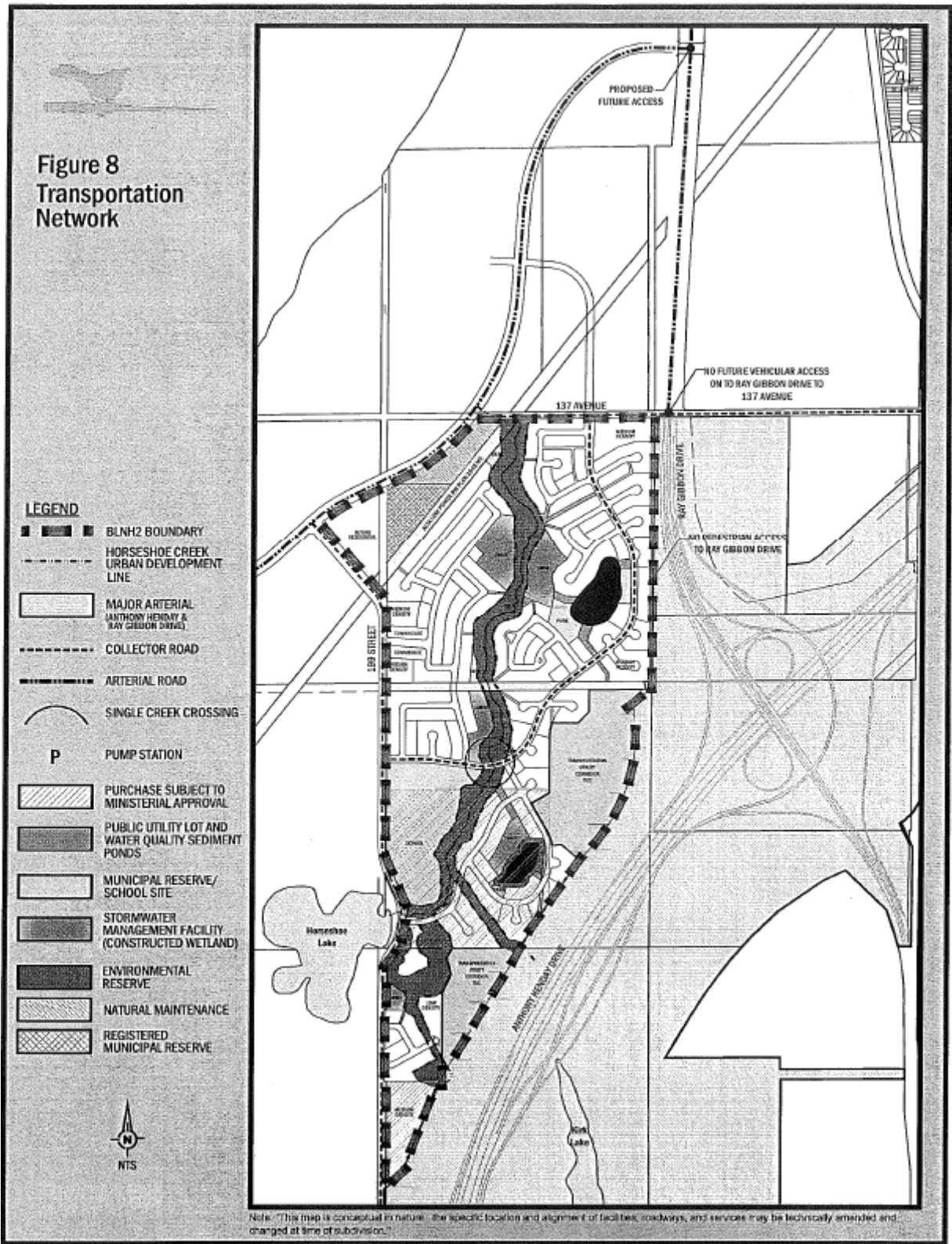
Bylaw 16068
May 10, 2013

Figure 7
Pedestrian
Linkages



Bylaw 16068
May 10, 2013

Figure 8
Transportation
Network



3.4.7 Infrastructure, Servicing and Staging

Sanitary

The sanitary system will be constructed in accordance with the City of Edmonton Design and Construction Standards. The majority of the system will be accomplished by a gravity sanitary system that will discharge to the proposed centralized sanitary pump station as shown on Figure 9. The lands designated Future Residential and Associated Uses will require an on-site private lift station for discharge into a gravity sewer system in the Trumpeter neighbourhood across the future 199 Street extension to the west. The on-site gravity system will be aligned within public right-of-ways and utility lots. The proposed public on-site pump station within Starling will link to the future 300 mm diameter forcemain that will be connected to the off-site pump station in Stage 1 of Trumpeter. The off-site pump station is located about 500 m west of the 199 Street road and just south of the existing 900 mm diameter Capital Region forcemain alignment. The off-site pump station is proposed to pump sanitary flows through a 350 mm and future 500mm diameter forcemain. The forcemain goes east and then south through Neighbourhood Two and continues south along Anthony Henday Drive and connects to a gravity trunk sewer near 109 Avenue and 199 Street. The gravity trunk sewer (W14) continues south along 199 Street and connects to the existing WESS W1 trunk near 100 Avenue.

Bylaw 15988
Jan. 30, 2012

Stormwater Management

Big Lake Neighbourhood Two will be divided into six (6) stormwater catchments - three (3) catchments are located on the east side and three (3) catchments are located on the west side of Horseshoe Creek. Five of the catchments will contain a Stormwater Management Facility (SWMF) as shown on Figure 10 - which are proposed to be constructed wetlands. The SWMF surface areas range from approximately 0.40 ha to 1.99 ha in size. Within these five catchments, both major and minor flows will be routed to these facilities. The SWMFs located adjacent to Horseshoe Creek will be designed to ensure preconstruction hydrological flows continue to reach the upland and riparian vegetation to ensure sustainability.

Bylaw 15988
Jan. 30, 2012

The sixth catchment is located in the northwest corner of the neighbourhood between the power right-of-way and the future 215 Street/137 Avenue arterial road. Storm drainage will be conveyed from these lands to a future SWMF beyond the Plan area further to the northwest. This SWMF is located at the southeast corner of 199 Street and 137 Avenue and was originally planned to accommodate drainage from the future 215 Street/137 Avenue arterial road. The size of this future SWMF is 1.25 ha to accommodate flows from the arterial road and development on those lands designated Future Residential and Associated Uses in the northwest corner of the neighbourhood. Alternately, detailed planning for these designated lands may consider accommodation of stormwater management within these lands at the future NSP amendment stage.

Five of the SWMFs will discharge by gravity to Horseshoe Creek and the one SWMF to the northwest of the Plan area will discharge by gravity to Big Lake. All SWMFs will discharge at a controlled rate to the outfalls which will be designed to minimize erosion and promote vegetative growth at the outfall locations. Creek slope and geometry will be altered to a minimum extent except where absolutely necessary. Considering the environmental sensitivity of the Big Lake area and Horseshoe Creek, design of SWMF's will incorporate appropriate water quality enhancement measures. Bio-swales and other best management practices will be incorporated into the design where feasible. The location and design of the SWMFs provides vistas into the site from the abutting roadways, and thereby heightens resident awareness of these facilities. Stormwater management facilities will be designed to serve as a destination for pedestrians and cyclists and to provide passive recreation opportunities.

Bylaw 15988
Jan. 30, 2012

Water Quality

The stormwater management system will generally be constructed in accordance with the City of Edmonton Design and Construction Standards, in compliance with the North Saskatchewan River Valley ARP, with the benefit of providing possible wildlife habitat and improving water quality via their natural filtration systems. There are several unique features in Starling that may provide opportunity for environmental innovation. These unique features include:

- A relatively deep groundwater table
- Substantial elevation drop across the site
- Environmental sensitivity

The following potential environmental innovations may be investigated regarding the stormwater system:

- Incorporation of floating islands within selected SWMF(s) to increase biomass and associated nutrient removal.
- Replacement of a portion of the underground storm system with a bioswale at selected locations to facilitate increased treatment during conveyance and promote greater evaporation and transpiration.
- Elimination of the underground storm system locations adjacent to the natural wetlands to increase the contact of runoff water with vegetated surfaces.
- Installation of vegetation around catch basin inlets at bump-outs or other locations.

Each innovation would be implemented in the form of a Pilot Project that would be monitored to evaluate success and determination of opportunities for improvement before implementation in future stages. The specific criteria and preliminary details for these environmental innovations will be provided in the NDR for the Starling.

Water

Potable water will be supplied by a pressurized network of water pipes that will be designed in accordance with City of Edmonton Design and Construction Standards to provide adequate fire flows for the development. The water network will connect to the existing 1050mm diameter Watermain at 184 Street and 128 Avenue, also at 184 Street and 137 Avenue. *A private corporation* has indicated that they have plans for the construction of a water reservoir/booster station to meet the future requirements of the Big Lake Area. It is anticipated that the reservoir will not be required for the initial stages of development and it is understood that *the private corporation* is responsible for the cost and construction of the future reservoir/booster station.

*Amended
by editor*

*Amended
by editor*

(See Figure 11)

A 450 mm water main currently traverses the southern portion of the neighbourhood to serve Trumpeter to the west. Its alignment crosses through the future school site on 199 Street and does not follow the future internal road alignments within the neighbourhood as shown on Figure 8. This water main must be removed and relocated to follow the neighbourhood's future internal road alignments without an interruption in water service to Trumpeter.

*Bylaw 15988
Jan. 30, 2012*

Shallow Utilities

Power, natural gas and communications services are located in the vicinity of the site and will be extended to meet site requirements as development proceeds. Suitable alignments will be provided to accommodate future *private – corporate* gas main installations as required.

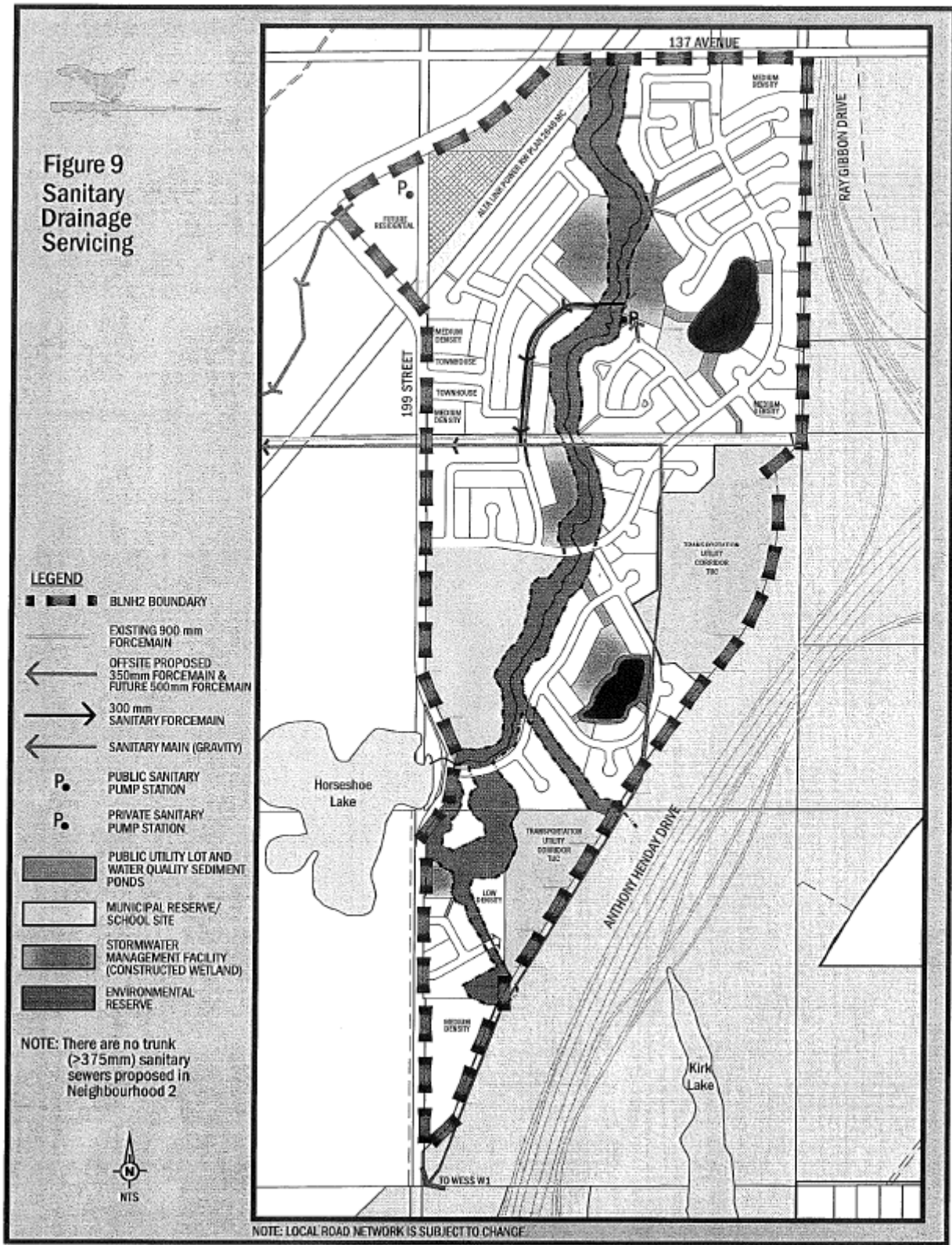
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Infrastructure, Servicing and Staging Objectives

Objective	NSP Policy	Implementation
3.4.7.1 Ensure that Starling is serviced to City Standard.	3.4.7.1 Sanitary and stormwater servicing will be provided in accordance with the approved Neighbourhood Design Report (NDR) for the Big Lake Neighbourhood Two NSP. Water Servicing to the NSP area will be provided in accordance with the approval Water Network Analysis (WNA). <i>The current alignment of the 450 mm water main through the neighbourhood serving Trumpeter must be relocated to within the future roadway network, and the current main removed, without an interruption in service to Trumpeter. (Bylaw 15988, Jan. 30, 2012)</i> The 450 mm water main must be removed and relocated as a condition of subdivision approval within the neighbourhood at the cost of the developer. Shallow utilities will be extended into the plan area as required. Roadways will be developed to City Standard.	3.4.7.1 Approval of engineering drawings and servicing agreements will be required for installation of servicing and stormwater servicing. Approval of engineering drawings and servicing agreements will be required for installation of water servicing. <i>The 450mm water main must be removed and relocated as a condition of subdivision approval within the neighborhood at the cost of the developer. (Bylaw 15988, Jan. 30, 2012)</i> Installation of shall utilities will be executed through servicing agreements.
sdfds3.4.7.2 Employ sustainable stormwater management techniques.	3.4.7.2 The planted landscape design of the stormwater management systems are encouraged to be native plant material to complement the ecology of Big Lake and the North Saskatchewan Ravine System and join biologically with this vegetative network.	3.4.7.2 The implementation of alternative stormwater management techniques are subject to further discussion with City of Edmonton Departments and affected Utility Agencies.
3.4.7.3 To identify and protect items with historical significance, such as buildings and areas of cultural significance, in the Starling.	3.4.7.3 Review past and current activities within the Big Lake Neighbourhood to identify items of historical significance.	3.4.7.3 A Historical Resources Impact Assessment (HRIA) was conducted for NW and SW 20-53-25-W4M. Further investigation will be conducted on remaining parcels prior to the rezoning stage of development.

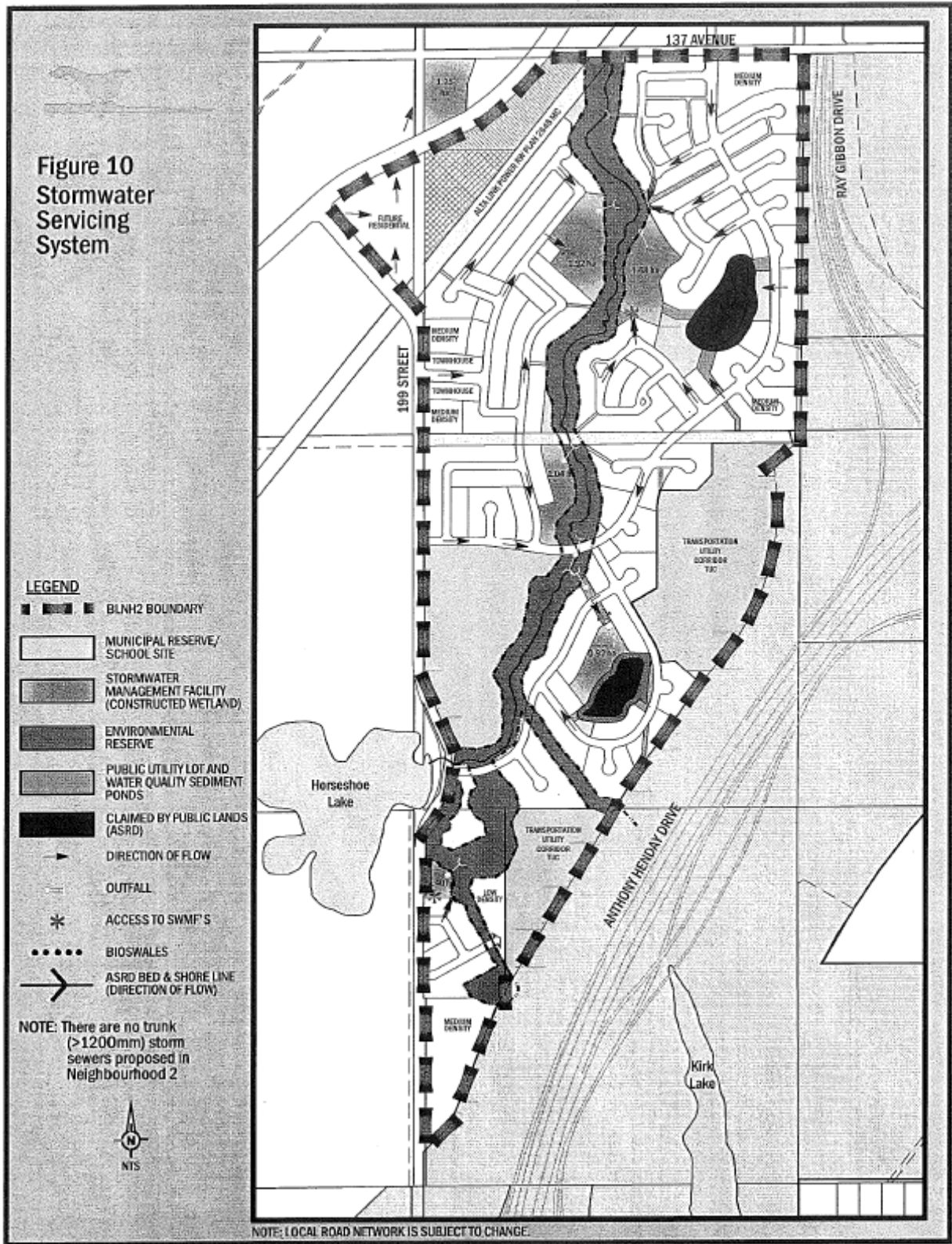
Bylaw 16068
May 10, 2013

Figure 9
Sanitary
Drainage
Servicing



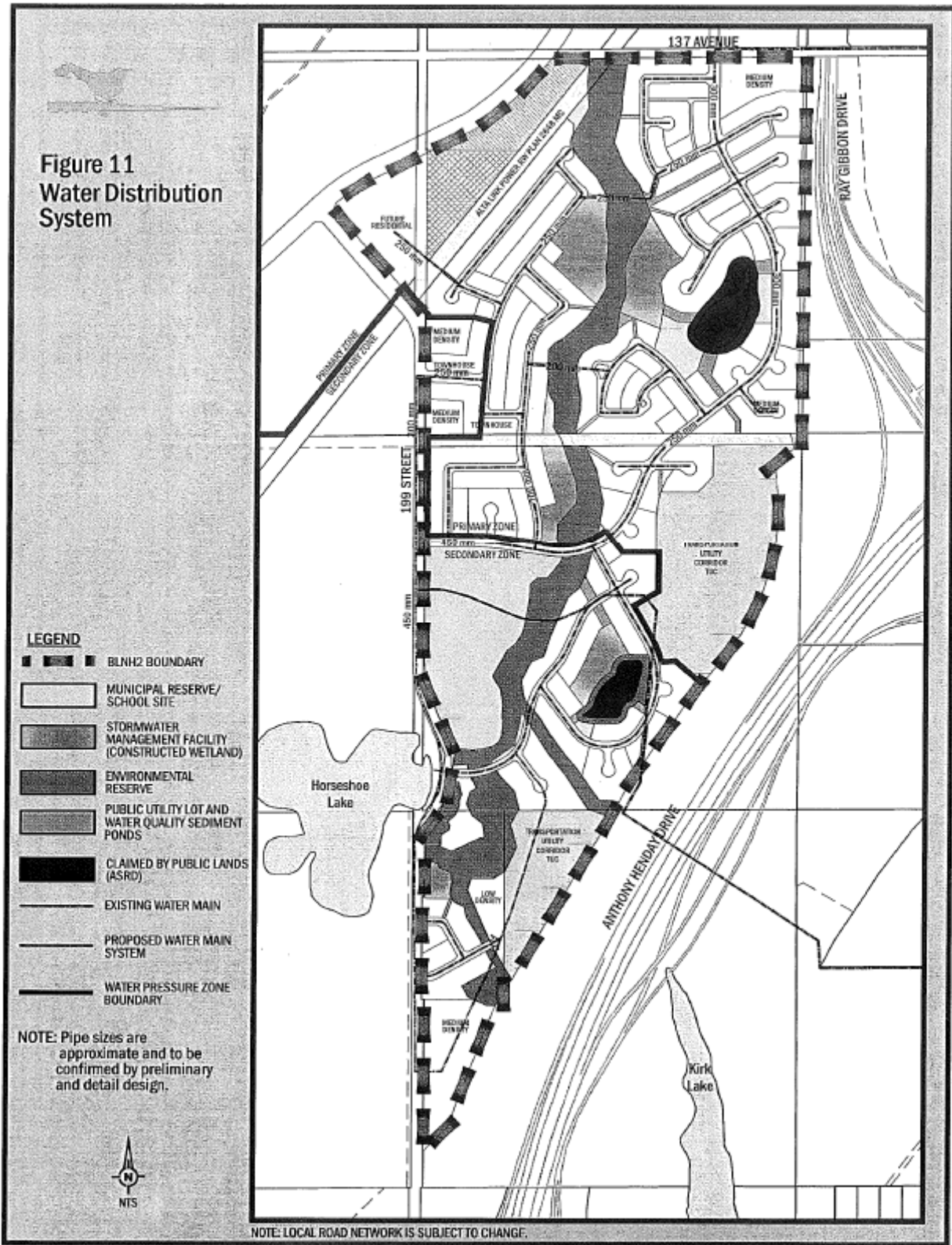
Bylaw 16068
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Figure 10
Stormwater
Servicing
System



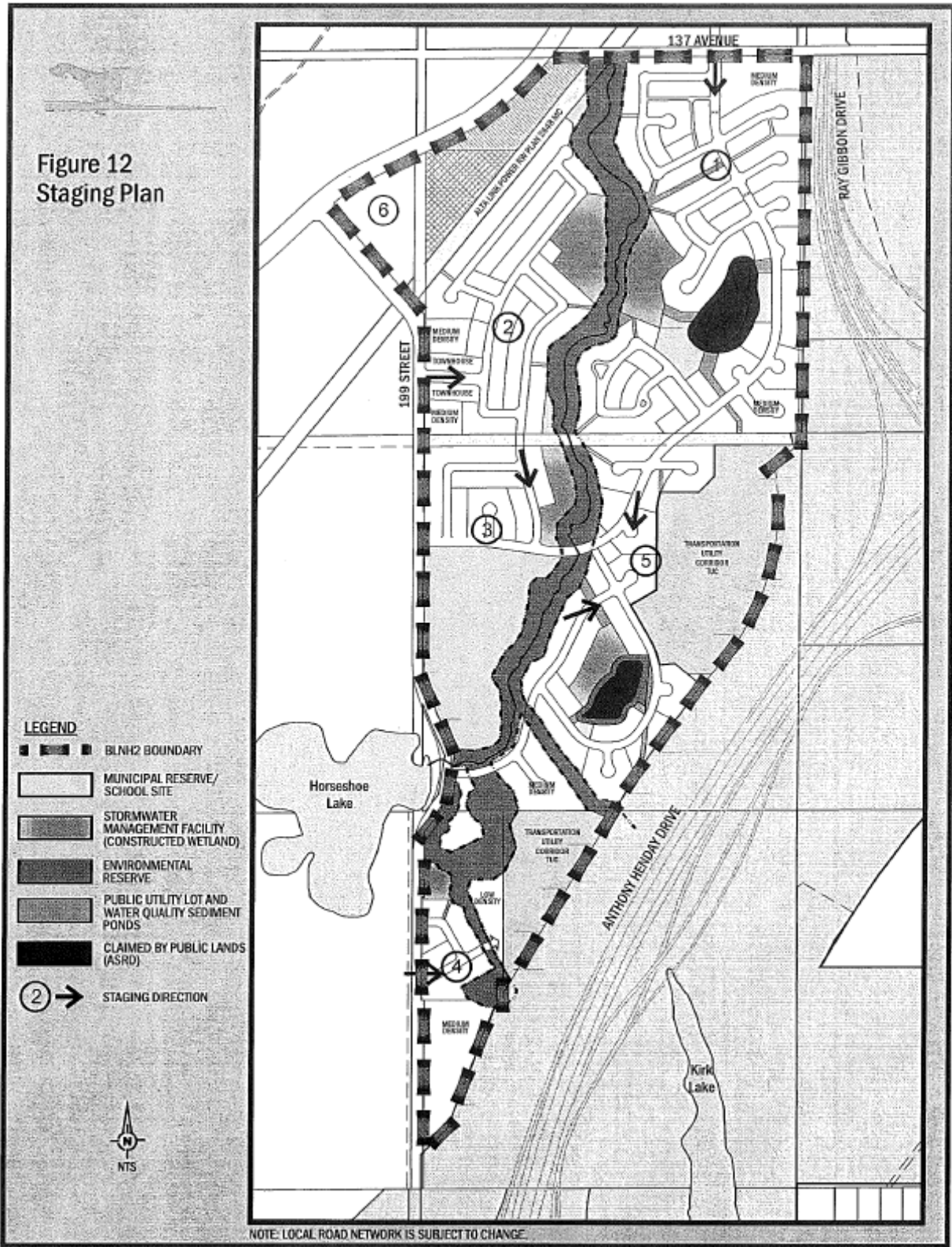
Bylaw 16068
May 10, 2013

Figure 11
Water Distribution
System



Bylaw 16068
May 10, 2013

Figure 12
Staging Plan



Appendix A
Planning Policy Context

The Way We Grow Municipal Development Plan

The following existing municipal, provincial and federal legislation and policies influenced the design of BLNH2.

In March of 2009, the City of Edmonton approved a new Municipal Development Plan (MDP) entitled The Way We Grow. The Way We Grow is a strategic policy framework for directing the physical, economic and social development for the City of Edmonton. An objective of the MDP related to Developing and Planned Neighbourhoods is “*design new neighbourhoods to support the health and liveability of our citizens*”. Implementation of this objective relevant to Starling include:

- the protection of natural features within the neighbourhood to provide a physical identity or marker for the community;
- the provision of public amenity spaces and both formal and informal gathering areas at focal points; and
- the appropriate location of school sites in relation to all of the communities they serve.

Land Use Bylaw

The Neighbourhood Structure Plan area is mostly designated AG (Agricultural Zone) with some A (Metropolitan Recreational Zone), RA7 (Low Rise Apartment Zone), RSL (Residential Small Lot Zone) and RF4 (Semi-detached Residential Zone) under Edmonton Zoning Bylaw No.12800 adopted by City Council on February 22, 2001.

*Bylaw 16068
May 10, 2013*

Smart Choices Initiatives

In 2004, the City of Edmonton approved the Smart Choices Program to establish how future change will happen in Edmonton's older neighbourhoods. This program has subsequently led to the desire to apply smart growth principles to new suburban developments. A number of principles that apply to the existing “Smart Choices Assessment” can be applied to the conservation oriented, planning principles proposed for the development of the Starling.

The City of Edmonton Planning and Development department is currently creating “New Neighbourhood Design Guidelines”. The intent of these guidelines is to facilitate parameters that ensure sustainable communities by adopting best practices for developments regardless of location or scale. As a result a variety of sustainability initiatives are presently being explored by City of Edmonton departments aimed at achieving low impact development (LID) in Edmonton. There is also a desire on City Council's behalf to support Smart Choices and Leed ND development.

North Saskatchewan River Valley Area Redevelopment Plan (1985)

The NSRVARP is a comprehensive plan that envisions the major portion of the River Valley and Ravine System for use as an environmental protection area and for major urban and natural parks. The ARP, adopted in 1985, identifies a boundary for the river valley and ravine system and a set of policies and development approval procedures for lands within the boundary.

Existing natural areas in Starling are currently designated as part of the North Saskatchewan River Valley ARP. Although BLNH2 is removed from the North Saskatchewan River Valley it provides invaluable linkages to surrounding areas from Big Lake and Lois Hole Centennial Provincial Park.

Conservation of Natural Areas in Edmonton's Tablelands (1993)

Since 1992 the Ribbon of Green Master Plan and its three principles of conservation, preservation and development have guided activity in the river valley. Subsequently, Edmonton's Conservation Policy C467 flowed from the Conservation of Natural Areas in Edmonton's Tablelands report completed in 1993.

Urban Parks Management Plan (2006)

The Urban Parks Management Plan approved by the City of Edmonton on June 13, 2006 reconfirmed the importance of previous environmental initiatives and the importance of the original NSRVARP. The UPMP was prepared to guide future acquisitions, design, construction, preservation and use of City parks, river valley and natural areas.

Natural Connections Strategic Plan (2007)

The Natural Connections Strategic Plan (Edmonton's Integrated Natural Areas Conservation Plan) approved in April 2007 builds on Edmonton's existing conservation foundation. Generally the Natural Connections Strategic Plan Big Lake ASP is identified as one of eight focus areas within its ecological network. The plan is supported by a new Natural Systems Policy and will be supplemented in the coming months by an Implementation Plan. Edmonton's Senior Management team has endorsed the Plan and it will likely be approved by council in 2007.

"Natural Connections" focuses on strengthening connections between natural areas, in the form of diverse, functional biological corridors that support critical natural processes and the movement of wildlife; and between people, in the form of supportive, creative partnerships that empower Edmontonian's to work cooperatively to protect and sustain Edmonton's natural systems."

Natural Areas Systems Policy C-531

The Big Lake Neighbourhood Structure Plan Amendment will comply with the Natural Areas Systems Policy C531.

Capital Region Land Use Plan

The Capital Regional Land Use Plan's primary purpose is to manage sustainable growth to protect the region's environment and resources, minimize the regional development footprint, strengthen communities within the region, increase choice of transportation and encourage economic growth. The proposed NSP intends to achieve these objectives through an integrated and strategic approach to planning by coordinating planning and development decisions in the Region and identifies a regional development pattern to complement existing infrastructure, services and land uses. The Big Lake Two NSP is located in the Priority Growth Area B, sub-area B₃ which has a minimum density target of 30 units per net residential hectare (upnrh). *The Starling NSP exceeds this target by proposing a density of 33.6 upnha.*

*Bylaw 16068
May 10, 2013*

Appendix B

Technical Studies

Phase 1 Environmental Site Assessment (*Private – Corporate*)

*Amended
by editor*

Phase 1 Environmental Site Assessment of
Plan 1456RS, Lots B and C, and Plan 4291RS, Lot 1A

Hard Copy Submission Only