☐ Additional Verbal Presentation

Request for Bylaw Reading

To: Mayor & Council
From: Heather Kauer, Senior Planner
Department: Development and Infrastructure Services
Date: September 21, 2015
Re: **Third Reading - Bylaw # 002-15 - Wetland Bylaw**

Overview:

In order to implement the policies of the Chestermere Wetland Policy, staff has developed a Wetland Bylaw. This document is drafted to be included in the City's land use bylaw.

Section 11.3 (A) of the draft wetland bylaw spells out specific wetlands to be retained in their natural state. These wetlands were identified as high value in the 2013 inventory conducted for the City by Fiera Consulting as well as those wetlands identified as Crown Claimed by Alberta Public Lands in 2014.

The remainder of the document spells out the process by which a developer must report his or her intentions around naturally occurring wetlands within the proposed development area.

At each stage of development the level of detail required for wetland reporting and planning is spelled out in Section 11.6 (b). Wetlands are identified at the ASP stage and wetland avoidance policies are spelled out in the document.

At the Outline Plan stage of development, developers would be required to submit an avoidance analysis detailing the thought process behind proposed retention and impact of wetlands on the development site as well as mapping of those wetlands proposed to be retained and impacted.

A wetland avoidance analysis is a narrative document detailing those factors the developer considered when deciding whether to avoid, minimize, or compensate for impact to the wetlands within his or her development. As detailed in Section 11.6(c), at a minimum the analysis should consider the following factors:

Ecological Value (functional assessment results, presence of listed species)	Level/type of current wetland disturbance	Current and planned Land use constraints (e.g. roadway alignment, residential density requirements)	Stormwater Management constraints

Staff would review the avoidance analysis and proposed wetland strategy for the site in conjunction with third party wetland biologist consultation, if necessary, and approve the strategy once determined acceptable.

Once development is at the subdivision stage, the bylaw anticipates that developers would need to provide a detailed wetland report which Chestermere would send out for third party adequacy review. Once the wetland report is approved, the developer would be asked to provide a mitigation report that details the measures that the developer will take to compensate on the ground for any impacts to wetlands on the site, e.g. replanting disturbed riparian edges of wetlands.

Current practice in the City of Calgary and surrounding areas is that developers would be responsible for monitoring new plantings until issuance of FAC, however, staff believe this timeframe doesn't allow for adequate monitoring of new plantings. As such, Chestermere should develop a mechanism for developers to monitor plantings for a minimum of 5 years.

Background:

Applicable Regulations: Sections 7, 187, 230, 606, 633, 636, 637, 638, and 692 of the *Municipal Government Act*, the *Town of Chestermere's Land Use Bylaw 022-10*, as amended, and The Town of Chestermere's *Municipal Development Plan* (*MDP*), the Chestermere Wetland Policy

History: October, 2013 – adoption of Chestermere Wetland Policy, detailing implementation to include a wetland bylaw.

February, 2013 – First Reading of Wetland Bylaw

August, 2015 – Public Hearing of Wetland Bylaw

Action Required:

There is no time frame in which Council is required to act on a bylaw within the *Municipal Government Act (MGA)*. However, any bylaw requires three separate readings by Council under Section 187 of the *MGA*, and a Public Hearing shall be held by Council prior to a Second Reading of any Bylaw under Section 692 of the *MGA*.

Section 188 of the MGA states that once First Reading is granted, Third Reading must be given within (2) years.

Discussion/Options/Benefits/Disadvantages:

1. Approve Third Reading of Bylaw 002 -15 as proposed.

2. Table the decision on Bylaw 002-15 as proposed and request further information if required.

3. Refuse Bylaw 002-15 as proposed and cite the reason(s) for refusal into the minutes of record

Attachments:

- **Proposed Bylaw 002-15 (13 Pages)**
- **Bylaw 002-15 Appendix A (1 Page)**
- **Bylaw 002-15 Appendix B (1 Page)**

Recommended Action:

That Council give third reading of Bylaw 002-15 being the Wetland Bylaw, as presented.

Director: _____

John Popoff

CAO: _____

Randy Patrick

CITY OF CHESTERMERE

PROVINCE OF ALBERTA

BYLAW #002-15

A Bylaw of the City of Chestermere, in the Province of Alberta, to amend the Land Us Bylaw (Bylaw No. 022-10) of the City of Chestermere

WHEREAS The Council of the City of Chestermere deems it desirable to amend the Land Use Bylaw (Bylaw No. 022-10);

NOW THEREFORE, be it resolved that the Council of the City of Chestermere, duly assembled, hereby enacts as follows:

1. The City of Chestermere's Land Use Bylaw, being Bylaw No. 022-10, is hereby amended as follows:

   The following shall be added after Part 10:

Part 11 WETLANDS

11.1 Application

The land use regulations and provisions in this section apply to the use and development of all land and buildings in all land use districts.

11.2 Definitions

In this Part, the definitions set out below shall be used in conjunction with Section 2.2 of this Bylaw.

"**Bed and shore**" means land that is or has been covered so long by water to the extent that:

a) no vegetation grows on the land, or

b) the vegetation that grows on the land is aquatic vegetation that must be partially submerged in water for part of its life cycle to survive.

"**Environmental reserve easement**" means an easement created pursuant to section 664(2) of the Municipal Government Act.

"**Hydroperiod**" means the seasonal pattern of water levels for a wetland. This pattern shall be defined with reference to three characteristics: How often is the wetland flooded (i.e., every year, every second year, every 4 out of 5 years)? How

deep is the wetland normally flooded? How long is the wetland normally flooded for (i.e., all year, from April through August, April through June)?

"**Impacted Wetlands**" means a naturally occurring wetland that will be physically modified.

"**Legal bank**" means the line where the bed and shore of a wetland ceases, which line shall be determined by an Alberta Land Surveyor in accordance with the provisions of the *Surveys Act*, R.S.A. 2000, c. S-26.

"**Mitigation**" means

a) Minimizing the impact of development by limiting the degree or magnitude of its effects, which may be achieved through the use of appropriate technology or by taking affirmative steps to avoid or reduce the impacts;

b) Rectifying the impact of development by repairing, rehabilitating or restoring the affected environment at the conclusion of the development;

c) Reducing or eliminating the impact of development over time through the use of preservation strategies and maintenance operations during the life of the development;

d) Compensating for the impact of development by replacing, enhancing, or providing substitute resources or environments; or

e) Monitoring the impact of development and taking appropriate corrective measures.

"**Municipal and school reserve**" means the land designated as municipal and school reserve under the provisions of the *Municipal Government Act.*

"**Naturally occurring wetland**" means a wetland where water has or does accumulate to the water elevations documented to have occurred under natural conditions.

"**Pesticide**" means pesticide within the meaning of the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12.

"**Pollutants**" mean substances such as sediments, nutrients, pesticides and toxic chemicals that typically reach a watercourse by surface or subsurface flows through adjacent lands, or the any "deleterious substance" as defined in the *Fisheries Act,* R.S.C. 1985, c. F-14, or any substance that may cause an "adverse effect" under the provisions of the *Environmental Protection and Enhancement Act,* R.S.A. 2000, c. E-12.

"**Qualified Professional**" means a person with experience and training in the applicable field. A qualified professional must have obtained a B.S. or B.A. or equivalent degree in biology, engineering, environmental studies, fisheries, geology or related field, and a minimum of 2 years of related work experience.

"Retained wetlands" means wetlands that will not be disturbed during development, which requires that any development be designed to maintain the pre-development wetland classification as set out in a Chestermere approved Wetland Report. Those wetlands identified in Appendix A with the numbers 1, 2, 3, and 4, to the extent practicable, shall be retained wetlands.

"**Riparian lands**" means lands adjacent to streams, rivers, wetlands, lakes, or other water bodies, where the vegetation and soils show evidence of being influenced by the presence of water. Riparian areas are transitional zone between surface water and drier uplands and play a vital role in the healthy functioning of both.

"**Roads**" means land

a) shown as a public right of way on a plan of survey that has been filed or registered in a land titles office; or

b) used as a public road, and includes a bridge forming part of a public road and any structure incidental to a public road, but does not include a highway as defined in part 17 of the Municipal Government Act.

"**Watershed**" means the area of land that catches precipitation and drains into a water body, including, but not limited to, a wetland, stream, river or lake.

"**Wetland**" means land saturated with water long enough to promote the formation of water altered soils, growth of water tolerant vegetation, and various kinds of biological activity that are adapted to the wet environment.

"**Wetland classification"** means the designation assigned to a wetland pursuant to various methodologies including the Stewart and Kantrud (1971) Wetland Classification Methodology.

"Wetland Function" means a process or series of processes that take place within a wetland.

"Wetland Value" means the importance of a wetland from an ecological and human perspective. It is assessed based on the relative abundance on the landscape and other key criteria such as biodiversity, water quality improvement, flood reduction, and human values, such as recreation, education, and cultural significance.

11.3 General Regulations

a) The wetlands identified with the numbers 1, 2, 3, 4, 5, 6, 7, 8, and 9 on the map attached as Appendix A shall be retained to the extent practicable. These wetlands will~~may~~ be integrated with ~~an~~ a City approved stormwater system, provided that the operation of the qualified stormwater system maintains the wetlands' incoming water quality, hydrology and wetland classification. If these wetlands are claimed as Crown land pursuant to the *Public Lands Act*, R.S.A. 2000, c. P-40, the development shall be consistent with the directions of Alberta Environment and Sustainable Resources.

b) The wetlands identified with the numbers A~~1~~, ~~2~~B, and ~~3~~ C on the map attached as Appendix B shall be prioritized for retention. These wetlands ~~may~~ will be integrated with ~~an~~ a City approved stormwater system, provided that the operation of the qualified stormwater system maintains the wetlands' incoming water quality, hydrology and wetland classification. If these wetlands are claimed as Crown land pursuant to the *Public Lands Act*, R.S.A. 2000, c. P-40, the development shall be consistent with the directions of Alberta Environment and Sustainable Resources.

c) The Development Authority may require the developer to retain all or portions of naturally occurring wetlands not identified in section 13.3(a) where the Development Authority determines that the development may be done in a manner that avoids, minimizes, or mitigates the impacts to the wetlands.

d) Prior to Area Structure Plan or Outline Plan approval, the developer shall consult with Alberta Environment and Sustainable Resources Development to determine whether the Crown intends to claim the wetlands on the site in accordance with the provisions of the *Public Lands Act,* R.S.A. 2000, c. P-40. Crown claimed wetlands shall be retained in accordance with the directions from Alberta Environment and Sustainable Resources Development.

e) In accordance with section 11.6 of this Bylaw, the applicant is solely responsible for adhering to all relevant provincial and federal legislation and regulations including the *Water Act,* R.S.A. 2000, c. W-3, and the Alberta Wetland Policy.

f) Where practicable to retain wetlands, the Development Authority may not approve development that disturbs a wetland. Where it can be demonstrated to the satisfaction of the Development Authority that it is not practical to avoid impacting a wetland, for example, due to inherent site constraints or the requirements for the proper functioning of a wetland, the Development Authority may approve development that disturbs a wetland with conditions designed to mitigate the impact of the development on the wetland. Preference will be given to mitigation actions in the following order of priority:

i) Minimizing the impact of unavoidable disturbance on the highest value wetlands;

ii) Rectifying or eliminating the impact of development over time through the use of preservation strategies and maintenance operations during the life of the development;

(iii) Compensating for the impact of development by replacing, enhancing or providing substitute resources or environments within the affected site; and

(iv) Monitoring the impact of the development and taking appropriate corrective measures.

g) Roads and utility rights-of-way shall only be allowed to cross retained wetlands and their buffers when:

i) alternative alignments are neither reasonable nor practical;

ii) roads and utilities are aligned together to minimize the number of crossings;

iii) the amount of disturbance is minimized by mitigation that maintains the natural long-term hydroperiod of the wetland; and

iv) any disturbed areas are restored using native plant species appropriate for the wetland type in the location.

h) No stripping, grading, placing or removal of fill of any kind, excess sedimentation or ditching, shall be permitted on or within retained wetlands and their buffers unless authorized or permitted by federal or provincial law.

i) Storage of any pollutants is prohibited on or within retained wetlands and their buffers unless authorized or permitted by federal or provincial law.

j) No outside storage is permitted on or within retained wetlands and their buffers.

k) Where retained wetlands are proposed to be integrated with approved stormwater systems, a stormwater report, consistent with the policies of the City's Integrated Stormwater Master Plan, shall be submitted in conjunction with a Wetland Report.

11.4 Restrictions in Wetlands

a) Restrictions on use:

Other than uses authorized or permitted by provincial or federal laws, only the following uses are permitted in retained wetlands and their buffers:

i) existing agriculture;

ii) existing parks and playgrounds;

iii) existing public and quasi-public utility installations and facilities; and

iv) existing roads and pathways.

b) The following uses may be approved by the Development Authority in retained wetlands and their buffers:

i) Proposed Roads; and

ii) Proposed Public Parks.

iii) Proposed Public Utilities

11.5 Setbacks

a) For those wetlands to be retained, the developer shall provide a strip of land, not less than 6 metres in width, abutting the bed and shore.

b) Minimum building setbacks beyond the 6 metre buffer in 11.5(a) of a naturally occurring wetland shall be proposed by the developer through a Wetland Report and approved by the Development Authority.

c) The Development Authority may grant reductions in the minimum building setbacks from the legal bank of a naturally occurring wetland if the development incorporates measures to minimize the impacts of the proposed development on the retained wetlands. The following table contains examples of the types of measures that may, but are not required to be, considered by the Development Authority in determining whether to grant a variance to the minimum building setbacks:

Examples of Disturbance	**Activities that Cause the Disturbance**	**Examples of Measures to Minimize Impacts**
Lights	Parking lots, warehouses, manufacturing, residential use	Direct lights away from wetland.
Noise	Manufacturing, residential use, commercial use	Locate activity that generates noise away from wetland.

Examples of Disturbance	Activities that Cause the Disturbance	Examples of Measures to Minimize Impacts
Toxic runoff	Parking lots, roads, manufacturing, residential areas, pesticides, landscaping	Direct all new runoff away from wetland. Establish restrictive caveats limiting use of pesticides within 30 m. of wetland. Apply integrated pest management. Integrate plans for improving water quality through the use of upland and wetland best management practices for surface water runoff.
Change in water regime (e.g., less or more runoff)	Impermeable surfaces, lawns, tilling	Infiltrate or treat, detain, and disperse new runoff into buffer. Ensure water quality of runoff is maintained or improved through the use of best management practices.
Pets	Residential use	Plant dense vegetation around development, such as rose, hawthorn, native grasses etc. Consider restricting off leash pet use of the area at certain times of the year (i.e., May through mid-August).
Human disturbance	Residential use	Establish and maintain a buffer with natural vegetation appropriate for region.
Dust/Sedimentation	Tilled fields, residential/industrial construction	Utilize best management practices for the type of development to control dust and minimize excess sediments.

11.6 Application Requirements

a) Prior to applying for an approval of an Area Structure Plan, Outline Plan, or Subdivision, the developer shall provide evidence of a Crown Land determination from the Public Lands division of Alberta Environment and Sustainable Resource Development pertaining to the wetlands within the development site.

b) Wetland related documents shall be required at each stage of development, including at a minimum the following site and proposal-related information:

Area Structure Plan	Outline Plan	Subdivision
Map depicting the location of all wetlands present on the project site included in ASP document.	Map depicting wetland classification and location of all wetlands present on project site as well as those wetlands proposed for full retention, impact, and compensation	Map depicting wetlands to be retained and their buffers
Avoidance Policies present in document	Avoidance Analysis as described below	Avoidance Analysis as described below, if not done at Outline Plan stage
Crown land determination	If not submitted at ASP, Crown land determination	If not submitted at ASP or Outline, Crown land determination
	Biophysical (and Wetland) Impact Assessment to assess all existing environmental features, assess potential environmental impacts, identify mitigations, and evaluate significance. Includes: - Above map plus classification Vegetation, wildlife habitat, general soils information Field inventories of all biophysical features: - Wetland functional assessment - Wetland mitigation plan - General Strategy for setbacks around wetlands is proposed - General strategies for monitoring	Biophysical Impact Assessment, if not already done Wetland Management Plan - Provides the plan for implementing the wetland mitigation strategy -Specific to the wetlands to be retained or only partially impacted - More specific field inventories are completed to provide data for managing the wetlands' health - Setbacks are identified more specifically in the field - Specific plans for integration with stormwater management infrastructure - Monitoring program
		Detailed Engineering reports
		Detailed Stormwater reporting including pond report, engineered drawing, including cross sections.

c) Avoidance Analysis:

To the extent possible, it is the City's intent to retain as many wetlands within the City as possible in their natural state. Where development is proposed on sites with naturally occurring wetlands, the City will consider impact or compensation of wetlands if the development applicant can demonstrate full consideration of development impact through an avoidance analysis. The avoidance analysis should include consideration of the following:

Ecological Value (functional assessment results, presence of listed species)	Level/type of current wetland disturbance	Current and planned Land use constraints (e.g. roadway alignment, residential density requirements)	Stormwater Management constraints

d) Wetland Report:

A. A written report prepared by a Qualified Professional and accompanying maps identifying the location of the existing wetlands and buffers within the project area;

B. The legal banks of the wetlands and proposed minimum building setbacks, along with rationale for the proposed minimum building setbacks;

C. Existing wetland acreage as determined by a Qualified Professional including the delineation (acreages) for the on-site portion of the wetland and the entire wetland area, including off-site portions;

D. Wetland classification for the entire wetland complex;

E. Identification, vegetation (including the species present and the community composition), including spatial characterization and digital mapping of the vegetative communities showing the location of various wetland/upland plant communities, wetland water depths associated with each plant community, and the health of each plant community (i.e., the presence and extent of invasive plant species);

F. Wildlife habitat;

G. Soil and substrate conditions based on a site assessment and/or soil survey information;

H. Topographic elevations or lidar information; and

I. A discussion of the all water sources supplying the wetland and documentation of hydrologic regime and condition including, but not limited to:

- the locations of all inlet and outlets;
- the connectivity of the wetland to other water bodies and sources;
- the hydroperiod information for the wetland;
- evidence of recharge or discharge;
- mapping of algal mats, flood debris, islands, and sediment deposits;
- extent of the wetland watershed;
- hydrology calculations to determine the average water depth in most years; and
- timing of water inputs along with wetland water runoff requirements in a normal year;

J. A habitat, hydrological and native vegetation conservation strategy that addresses methods to protect and enhance on-site habitat and wetland functions through the design, construction and post-commissioning phases of the project;

K. Functional evaluation of the wetland and its buffer using a method approved by the Development Authority, including the reference of the method use to determine the method and all data sheets;

L. A scale map of the proposed development site and adjacent area;

M. Recommendations for ongoing management practices that will protect the retained wetlands after the project site has been developed, including proposed monitoring and maintenance protocols over the short-term and long-term life span of the development; and

N. Performance standards that provide a measurable standard to verify that the wetland category has being maintained post-development.

e) Wetland Mitigation Report: For wetlands that will be impacted by the proposed development, but that will retain some wetland functions and values despite the change in their wetland classification value, including those wetlands that are proposed to be integrated into a stormwater system or Parks and Open Spaces, the developer shall submit a Wetland Mitigation Report to include the following:

A. A report prepared by a Qualified Professional including a minimum of one Qualified Professional who is a professional wetland scientist. Depending on

the complexity of the project, the design team may include other Qualified Professionals such as civil engineers, landscape architects or landscape designers. For projects where wetlands and stormwater systems are integrated, the plans shall combine information on both the stormwater system and wetland. The stormwater report shall be consistent with the policies of the City's Integrated Stormwater Master Plan.

B. The name and contact information of the applicant, the name, qualifications, and contact information for the primary author(s) of the report, a description of the proposal, a summary of the impacts and the proposed mitigation concept, identification of all the local, provincial, and/or federal wetland related permit(s) required for the project, and a vicinity map for the project;

C. A description and delineation (acreages) of the existing wetland and buffer areas proposed to be impacted, the existing wetland classification including dominant vegetation community types (for upland and wetland habitats), the results of a functional and hydrological assessment for the entire wetland and those portions of the wetland proposed to be impacted;

D. An assessment of the potential changes in wetland hydroperiod as a result of the proposed development and how the design has been modified to avoid, minimize or reduce adverse impacts to the wetland hydroperiod. A description of the sequence of expected changes in hydroperiod for the mitigation locations;

E. A description of the proposed mitigation actions for wetland and upland areas, including all species proposed by location, community type and hydrologic requirements, the type of plant material to be installed, the plant installation methodologies and timing of installations, the total number of each species by community type.

F. An assessment of the existing site conditions at the location of the proposed mitigation actions, including, but not limited to, a plant list, vegetation community structure and composition, existing hydroperiod, existing soil conditions, and existing habitat functions.

G. An analysis of future site conditions if the mitigation actions are not undertaken (i.e., how would this site progress through natural succession without the mitigation actions);

H. The field data collected to document the existing site conditions and that inform the analysis of the future site conditions (e.g., soil pit data – hand dug or mechanically trenched, soil boring data). Soil survey data is not sufficient to establish existing site conditions;

I. A discussion of ongoing management practices that will protect and maintain the natural hydrology of the wetlands after the project site has been developed, including proposed monitoring and maintenance programs;

J. Performance standards that provide a measurable standard to verify that the wetland design plans have met the performance requirements of the pre-development naturally occurring wetland, the effectiveness of post-development mitigation actions for upland and wetland communities, a bi-annual monitoring and maintenance schedule.

K. Proof that an environmental reserve easement against the land in favour of the City.

L. Plan sheets for the proposed mitigation actions that must contain, at a minimum, the following information, drawn to scale:

1. The legal banks of the existing wetlands and their buffers, any proposed areas of the wetlands and/or buffer that will be impacted by the proposed development, and the location of the proposed wetland and/or buffer mitigation actions;

2. If any grading activity is proposed to create the mitigation area, the existing topography at two-foot contour intervals at the location of the proposed mitigation actions. The plan sheets shall include Cross-sections (estimated one-foot internals) of the existing on-site wetlands and the proposed mitigation actions and buffers;

3. Surface and subsurface hydrologic conditions, including an analysis of existing and proposed hydrologic regimes for enhanced, created, or restored mitigation areas.

4. Proposed site conditions expected from the proposed mitigation actions on site including future hydro geomorphic classification of the wetlands, vegetation including the species present and the community composition (wetland and upland), and future hydrologic regimes; and

5. Minimum building setbacks for retained wetlands and proposed mitigation areas.

READ A FIRST TIME IN COUNCIL THIS 2nd DAY OF February, 2015.

READ A SECOND TIME IN COUNCIL THIS 8th DAY OF September, 2015.

READ A THIRD TIME IN COUNCIL AND FINALLY PASSED THIS _____ DAY OF _____, 2015.

_____
[Name]
MAYOR

_____
[Name]
Chief Administrative Officer

_____
Date Signed

CITY OF CHESTERMERE

PROVINCE OF ALBERTA

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a) The wetlands identified with the numbers 1, 2, 3, 4, 5, 6, 7, 8, and 9 on the map attached as Appendix A shall be retained to the extent practicable. These wetlands will be integrated with a City approved stormwater system, provided that the operation of the qualified stormwater system maintains the wetlands' incoming water quality, hydrology and wetland classification. If these wetlands are claimed as Crown land pursuant to the *Public Lands Act*, R.S.A. 2000, c. P-40, the development shall be consistent with the directions of Alberta Environment and Sustainable Resources.

b) The wetlands identified with the numbers A,B, and C on the map attached as Appendix B shall be prioritized for retention. These wetlands will be integrated with a City approved stormwater system, provided that the operation of the qualified stormwater system maintains the wetlands' incoming water quality, hydrology and wetland classification. If these wetlands are claimed as Crown land pursuant to the *Public Lands Act*, R.S.A. 2000, c. P-40, the development shall be consistent with the directions of Alberta Environment and Sustainable Resources.

c) The Development Authority may require the developer to retain all or portions of naturally occurring wetlands not identified in section 13.3(a) where the Development Authority determines that the development may be done in a manner that avoids, minimizes, or mitigates the impacts to the wetlands.

d) Prior to Area Structure Plan or Outline Plan approval, the developer shall consult with Alberta Environment and Sustainable Resources Development to determine whether the Crown intends to claim the wetlands on the site in accordance with the provisions of the *Public Lands Act,* R.S.A. 2000, c. P-40. Crown claimed wetlands shall be retained in accordance with the directions from Alberta Environment and Sustainable Resources Development.

e) In accordance with section 11.6 of this Bylaw, the applicant is solely responsible for adhering to all relevant provincial and federal legislation and regulations including the *Water Act,* R.S.A. 2000, c. W-3, and the Alberta Wetland Policy.

f) Where practicable to retain wetlands, the Development Authority may not approve development that disturbs a wetland. Where it can be demonstrated to the satisfaction of the Development Authority that it is not practical to avoid impacting a wetland, for example, due to inherent site constraints or the requirements for the proper functioning of a wetland, the Development Authority may approve development that disturbs a wetland with conditions designed to mitigate the impact of the development on the wetland. Preference will be given to mitigation actions in the following order of priority:

i) Minimizing the impact of unavoidable disturbance on the highest value wetlands;

ii) Rectifying or eliminating the impact of development over time through the use of preservation strategies and maintenance operations during the life of the development;

(iii) Compensating for the impact of development by replacing, enhancing or providing substitute resources or environments within the affected site; and

(iv) Monitoring the impact of the development and taking appropriate corrective measures.

g) Roads and utility rights-of-way shall only be allowed to cross retained wetlands and their buffers when:

i) alternative alignments are neither reasonable nor practical;

ii) roads and utilities are aligned together to minimize the number of crossings;

iii) the amount of disturbance is minimized by mitigation that maintains the natural long-term hydroperiod of the wetland; and

iv) any disturbed areas are restored using native plant species appropriate for the wetland type in the location.

h) No stripping, grading, placing or removal of fill of any kind, excess sedimentation or ditching, shall be permitted on or within retained wetlands and their buffers unless authorized or permitted by federal or provincial law.

i) Storage of any pollutants is prohibited on or within retained wetlands and their buffers unless authorized or permitted by federal or provincial law.

j) No outside storage is permitted on or within retained wetlands and their buffers.

k) Where retained wetlands are proposed to be integrated with approved stormwater systems, a stormwater report, consistent with the policies of the City's Integrated Stormwater Master Plan, shall be submitted in conjunction with a Wetland Report.

11.4 Restrictions in Wetlands

a) Restrictions on use:

Other than uses authorized or permitted by provincial or federal laws, only the following uses are permitted in retained wetlands and their buffers:

i) existing agriculture;

ii) existing parks and playgrounds;

iii) existing public and quasi-public utility installations and facilities; and

iv) existing roads and pathways.

b) The following uses may be approved by the Development Authority in retained wetlands and their buffers:

i) Proposed Roads; and

ii) Proposed Public Parks.

iii) Proposed Public Utilities

11.5 Setbacks

a) For those wetlands to be retained, the developer shall provide a strip of land, not less than 6 metres in width, abutting the bed and shore.

b) Minimum building setbacks beyond the 6 metre buffer in 11.5(a) of a naturally occurring wetland shall be proposed by the developer through a Wetland Report and approved by the Development Authority.

c) The Development Authority may grant reductions in the minimum building setbacks from the legal bank of a naturally occurring wetland if the development incorporates measures to minimize the impacts of the proposed development on the retained wetlands. The following table contains examples of the types of measures that may, but are not required to be, considered by the Development Authority in determining whether to grant a variance to the minimum building setbacks:

Examples of Disturbance	**Activities that Cause the Disturbance**	**Examples of Measures to Minimize Impacts**
Lights	Parking lots, warehouses, manufacturing, residential use	Direct lights away from wetland.
Noise	Manufacturing, residential use, commercial use	Locate activity that generates noise away from wetland.

Examples of Disturbance	Activities that Cause the Disturbance	Examples of Measures to Minimize Impacts
Toxic runoff	Parking lots, roads, manufacturing, residential areas, pesticides, landscaping	Direct all new runoff away from wetland. Establish restrictive caveats limiting use of pesticides within 30 m. of wetland. Apply integrated pest management. Integrate plans for improving water quality through the use of upland and wetland best management practices for surface water runoff.
Change in water regime (e.g., less or more runoff)	Impermeable surfaces, lawns, tilling	Infiltrate or treat, detain, and disperse new runoff into buffer. Ensure water quality of runoff is maintained or improved through the use of best management practices.
Pets	Residential use	Plant dense vegetation around development, such as rose, hawthorn, native grasses etc. Consider restricting off leash pet use of the area at certain times of the year (i.e., May through mid-August).
Human disturbance	Residential use	Establish and maintain a buffer with natural vegetation appropriate for region.
Dust/Sedimentation	Tilled fields, residential/industrial construction	Utilize best management practices for the type of development to control dust and minimize excess sediments.

11.6 Application Requirements

a) Prior to applying for an approval of an Area Structure Plan, Outline Plan, or Subdivision, the developer shall provide evidence of a Crown Land determination from the Public Lands division of Alberta Environment and Sustainable Resource Development pertaining to the wetlands within the development site.

b) Wetland related documents shall be required at each stage of development, including at a minimum the following site and proposal-related information:

Area Structure Plan	Outline Plan	Subdivision
Map depicting the location of all wetlands present on the project site included in ASP document.	Map depicting wetland classification and location of all wetlands present on project site as well as those wetlands proposed for full retention, impact, and compensation	Map depicting wetlands to be retained and their buffers
Avoidance Policies present in document	Avoidance Analysis as described below	Avoidance Analysis as described below, if not done at Outline Plan stage
Crown land determination	If not submitted at ASP, Crown land determination	If not submitted at ASP or Outline, Crown land determination
	Biophysical (and Wetland) Impact Assessment to assess all existing environmental features, assess potential environmental impacts, identify mitigations, and evaluate significance. Includes: - Above map plus classification Vegetation, wildlife habitat, general soils information Field inventories of all biophysical features: - Wetland functional assessment - Wetland mitigation plan - General Strategy for setbacks around wetlands is proposed - General strategies for monitoring	Biophysical Impact Assessment, if not already done Wetland Management Plan - Provides the plan for implementing the wetland mitigation strategy -Specific to the wetlands to be retained or only partially impacted - More specific field inventories are completed to provide data for managing the wetlands' health - Setbacks are identified more specifically in the field - Specific plans for integration with stormwater management infrastructure - Monitoring program
		Detailed Engineering reports
		Detailed Stormwater reporting including pond report, engineered drawing, including cross sections.

c) Avoidance Analysis:

To the extent possible, it is the City's intent to retain as many wetlands within the City as possible in their natural state. Where development is proposed on sites with naturally occurring wetlands, the City will consider impact or compensation of wetlands if the development applicant can demonstrate full consideration of development impact through an avoidance analysis. The avoidance analysis should include consideration of the following:

Ecological Value (functional assessment results, presence of listed species)	Level/type of current wetland disturbance	Current and planned Land use constraints (e.g. roadway alignment, residential density requirements)	Stormwater Management constraints

d) Wetland Report:

A. A written report prepared by a Qualified Professional and accompanying maps identifying the location of the existing wetlands and buffers within the project area;

B. The legal banks of the wetlands and proposed minimum building setbacks, along with rationale for the proposed minimum building setbacks;

C. Existing wetland acreage as determined by a Qualified Professional including the delineation (acreages) for the on-site portion of the wetland and the entire wetland area, including off-site portions;

D. Wetland classification for the entire wetland complex;

E. Identification, vegetation (including the species present and the community composition), including spatial characterization and digital mapping of the vegetative communities showing the location of various wetland/upland plant communities, wetland water depths associated with each plant community, and the health of each plant community (i.e., the presence and extent of invasive plant species);

F. Wildlife habitat;

G. Soil and substrate conditions based on a site assessment and/or soil survey information;

H. Topographic elevations or lidar information; and

I. A discussion of the all water sources supplying the wetland and documentation of hydrologic regime and condition including, but not limited to:

- the locations of all inlet and outlets;
- the connectivity of the wetland to other water bodies and sources;
- the hydroperiod information for the wetland;
- evidence of recharge or discharge;
- mapping of algal mats, flood debris, islands, and sediment deposits;
- extent of the wetland watershed;
- hydrology calculations to determine the average water depth in most years; and
- timing of water inputs along with wetland water runoff requirements in a normal year;

J. A habitat, hydrological and native vegetation conservation strategy that addresses methods to protect and enhance on-site habitat and wetland functions through the design, construction and post-commissioning phases of the project;

K. Functional evaluation of the wetland and its buffer using a method approved by the Development Authority, including the reference of the method use to determine the method and all data sheets;

L. A scale map of the proposed development site and adjacent area;

M. Recommendations for ongoing management practices that will protect the retained wetlands after the project site has been developed, including proposed monitoring and maintenance protocols over the short-term and long-term life span of the development; and

N. Performance standards that provide a measurable standard to verify that the wetland category has being maintained post-development.

e) Wetland Mitigation Report: For wetlands that will be impacted by the proposed development, but that will retain some wetland functions and values despite the change in their wetland classification value, including those wetlands that are proposed to be integrated into a stormwater system or Parks and Open Spaces, the developer shall submit a Wetland Mitigation Report to include the following:

A. A report prepared by a Qualified Professional including a minimum of one Qualified Professional who is a professional wetland scientist. Depending on

the complexity of the project, the design team may include other Qualified Professionals such as civil engineers, landscape architects or landscape designers. For projects where wetlands and stormwater systems are integrated, the plans shall combine information on both the stormwater system and wetland. The stormwater report shall be consistent with the policies of the City's Integrated Stormwater Master Plan.

B. The name and contact information of the applicant, the name, qualifications, and contact information for the primary author(s) of the report, a description of the proposal, a summary of the impacts and the proposed mitigation concept, identification of all the local, provincial, and/or federal wetland related permit(s) required for the project, and a vicinity map for the project;

C. A description and delineation (acreages) of the existing wetland and buffer areas proposed to be impacted, the existing wetland classification including dominant vegetation community types (for upland and wetland habitats), the results of a functional and hydrological assessment for the entire wetland and those portions of the wetland proposed to be impacted;

D. An assessment of the potential changes in wetland hydroperiod as a result of the proposed development and how the design has been modified to avoid, minimize or reduce adverse impacts to the wetland hydroperiod. A description of the sequence of expected changes in hydroperiod for the mitigation locations;

E. A description of the proposed mitigation actions for wetland and upland areas, including all species proposed by location, community type and hydrologic requirements, the type of plant material to be installed, the plant installation methodologies and timing of installations, the total number of each species by community type.

F. An assessment of the existing site conditions at the location of the proposed mitigation actions, including, but not limited to, a plant list, vegetation community structure and composition, existing hydroperiod, existing soil conditions, and existing habitat functions.

G. An analysis of future site conditions if the mitigation actions are not undertaken (i.e., how would this site progress through natural succession without the mitigation actions);

H. The field data collected to document the existing site conditions and that inform the analysis of the future site conditions (e.g., soil pit data – hand dug or mechanically trenched, soil boring data). Soil survey data is not sufficient to establish existing site conditions;

I. A discussion of ongoing management practices that will protect and maintain the natural hydrology of the wetlands after the project site has been developed, including proposed monitoring and maintenance programs;

J. Performance standards that provide a measurable standard to verify that the wetland design plans have met the performance requirements of the pre-development naturally occurring wetland, the effectiveness of post-development mitigation actions for upland and wetland communities, a bi-annual monitoring and maintenance schedule.

K. Proof that an environmental reserve easement against the land in favour of the City.

L. Plan sheets for the proposed mitigation actions that must contain, at a minimum, the following information, drawn to scale:

1. The legal banks of the existing wetlands and their buffers, any proposed areas of the wetlands and/or buffer that will be impacted by the proposed development, and the location of the proposed wetland and/or buffer mitigation actions;

2. If any grading activity is proposed to create the mitigation area, the existing topography at two-foot contour intervals at the location of the proposed mitigation actions. The plan sheets shall include Cross-sections (estimated one-foot internals) of the existing on-site wetlands and the proposed mitigation actions and buffers;

3. Surface and subsurface hydrologic conditions, including an analysis of existing and proposed hydrologic regimes for enhanced, created, or restored mitigation areas.

4. Proposed site conditions expected from the proposed mitigation actions on site including future hydro geomorphic classification of the wetlands, vegetation including the species present and the community composition (wetland and upland), and future hydrologic regimes; and

5. Minimum building setbacks for retained wetlands and proposed mitigation areas.

READ A FIRST TIME IN COUNCIL THIS 2nd DAY OF February, 2015.

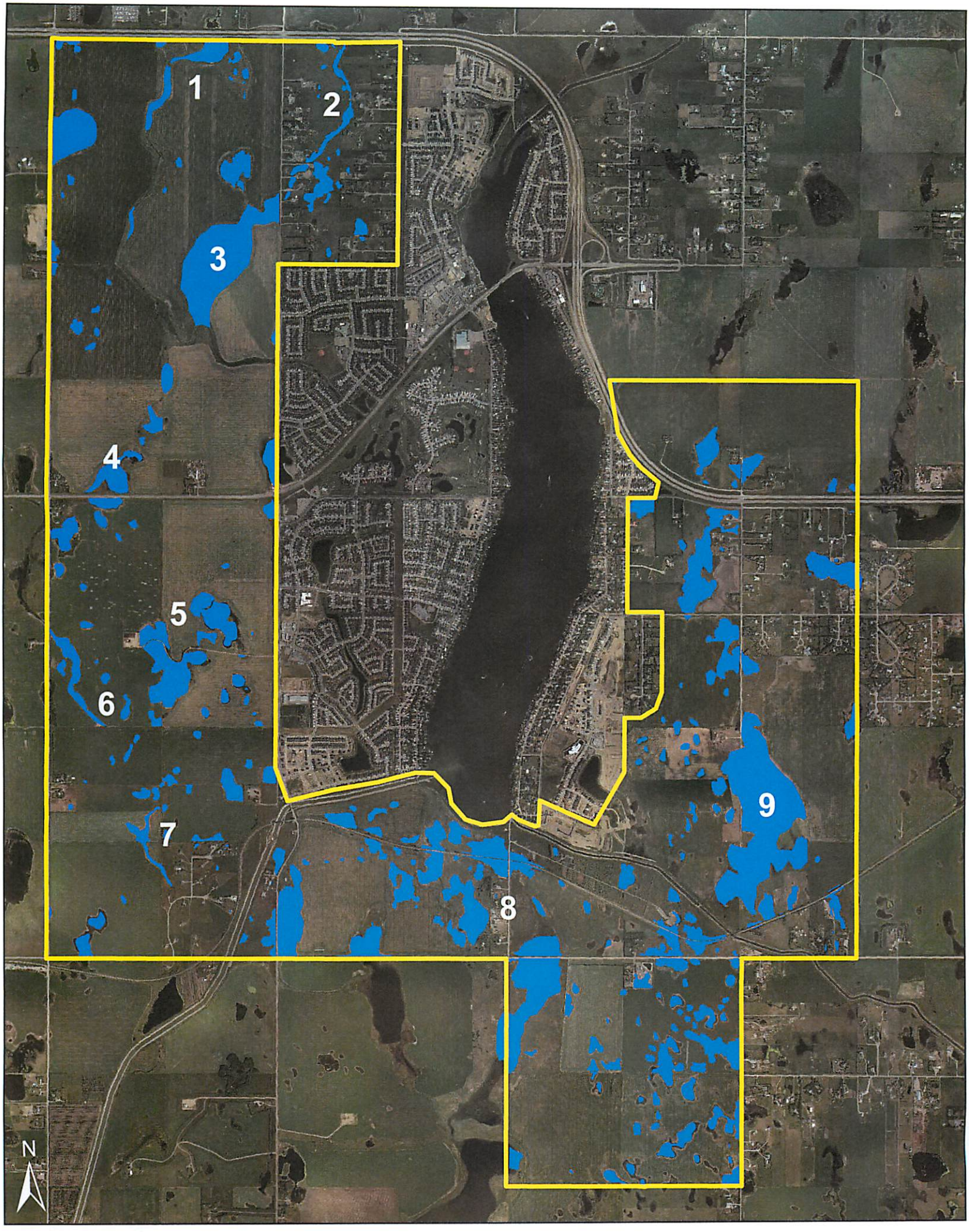
READ A SECOND TIME IN COUNCIL THIS 8th DAY OF September, 2015.

READ A THIRD TIME IN COUNCIL AND FINALLY PASSED THIS _____ DAY OF _____, 2015.

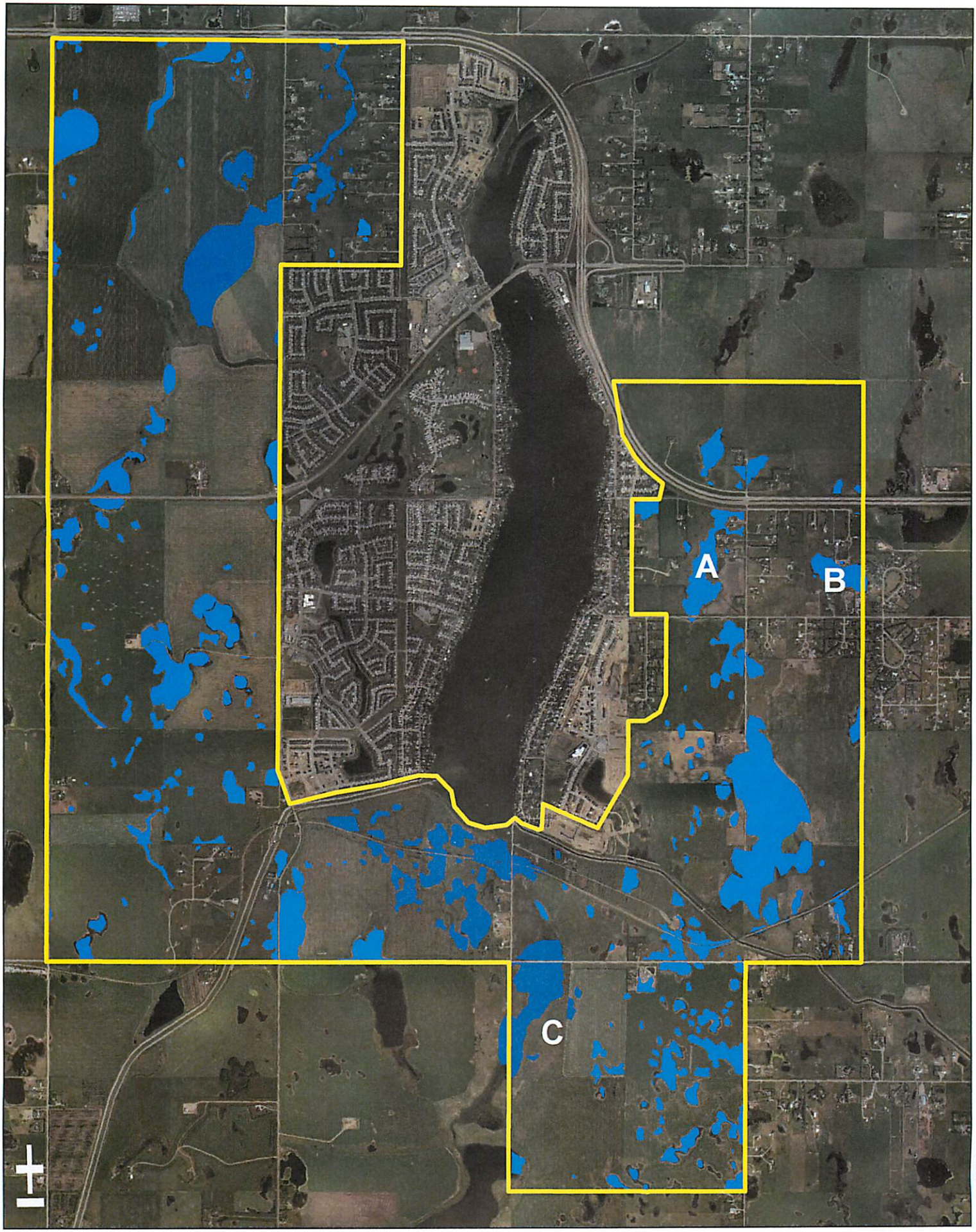
_____
[Name]
MAYOR

_____
[Name]
Chief Administrative Officer

_____
Date Signed



Appendix A



Appendix B