



Photos by Judy Stewart, Cochrane, Alberta June 2006

**Template of Land Use Bylaw Regulations**  
**for the Protection of Natural Environment Features and Water Resources**  
**including Wetlands, Riparian Lands and Reserve Lands**

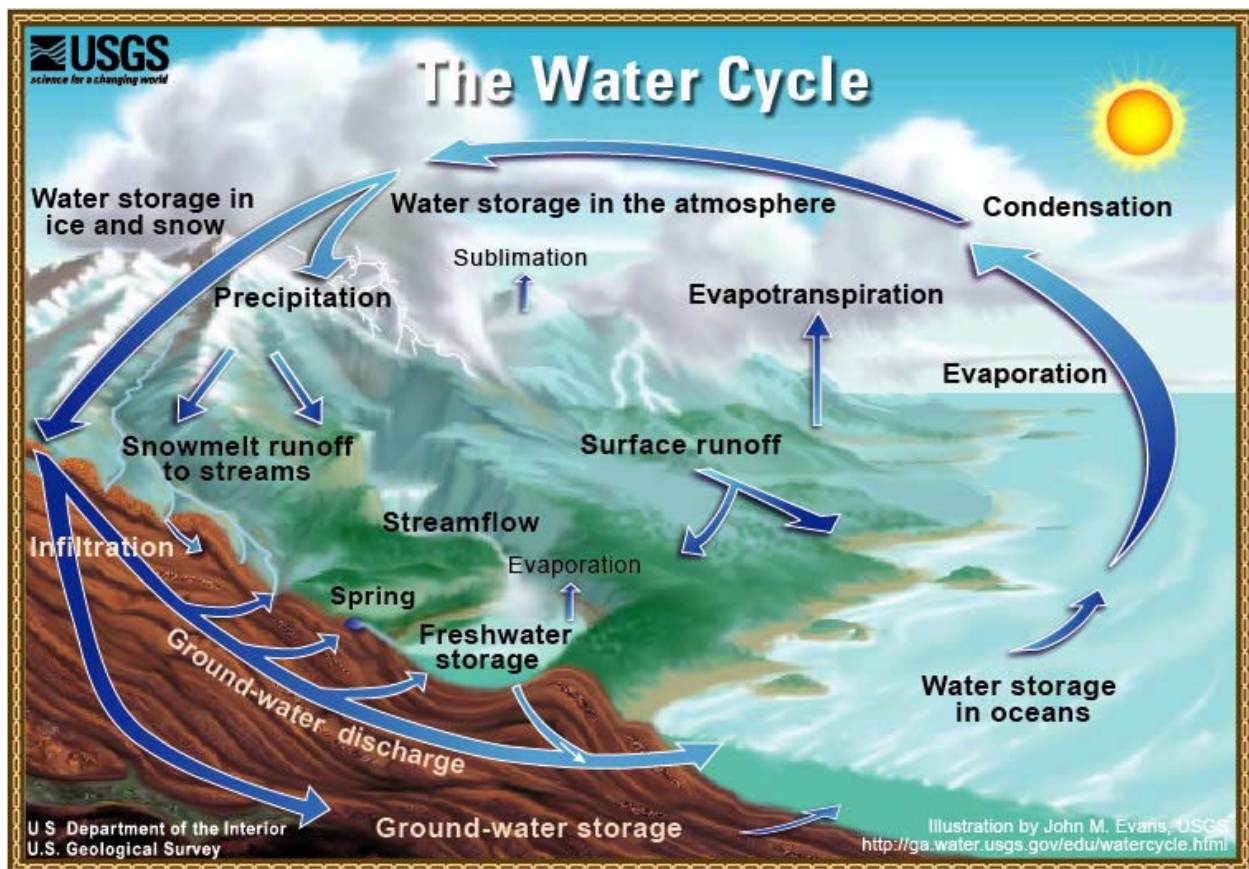
submitted to the Bow River Basin Council Board of Directors

**by Judy Stewart**  
on behalf of Land Use Bylaw Template Subcommittee and  
Bow River Basin Council (BRBC) Legislation and Policy Committee

**April 30, 2008**

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## **Acknowledgements**

Judy Stewart acknowledges the work of many individuals and municipalities who have contributed indirectly to the following Template of Land Use Bylaw Regulations. She would specifically like to thank Tim Giese of Cochrane, Alberta who had the idea to get this done, Sandy Wong, Planner Town of Cochrane (Retired), Wayne Nelson, Alberta Sustainable Resource Development (Retired) Blake Mills, Alberta Environment, and the planning staff from Strathcona County who all contributed through original drafting that has been borrowed, or adapted and modified to suit the purposes of this document. Judy also thanks Jay White, Bert van Duin, Jon Fennell and Gary Kindrat for their interdisciplinary scientific approach to ensuring that municipalities can successfully implement the regulations presented. Judy thanks the BRBC Legislation and Policy Committee members individually and collectively who have reviewed the original document:

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## **Disclaimer/Caution**

The Template is offered to BRBC's member municipalities for public education purposes only, and users are cautioned to seek professional planning and legal advice before incorporating policies and regulations into their Municipal Development Plans and Land Use Bylaws.

## Background

In 2006, the BRBC Legislation and Policy Committee prepared a draft Template of Land Use Bylaw Provisions to Protect Water Resources, Wetlands, Riparian Lands and Reserve Lands within Alberta Municipalities (the Template). The Template is consistent with the provincial *Land Use Policies*<sup>1</sup> and section 622 of the *Municipal Government Act*.<sup>2</sup>

The draft document was posted on the BRBC website for two years to receive comments and feedback from member municipalities. During that time, several provincial policies concerning natural resource and water resource protection and land use management were reviewed, including the provincial wetland policy and the Land Use Framework<sup>3</sup>. Sustainable Resource Environmental Management (SREM) also undertook a riparian area management project for urban centers in southern Alberta. A Cumulative Effects Management project was commenced by Alberta Environment. Groundwater was recognized as an important water supply source. The Alberta Water Council, established as a result of *Water For Life: Alberta's Strategy for Sustainability*<sup>4</sup>, commissioned several project teams to address emerging issues of water and watershed management. Several definitions and concepts emerged from the extensive reviews and reports, which are incorporated in the final draft of this Template. The title of the Template has been amended slightly to better signify matters being addressed.

Before creating Land Use Bylaw regulations as provided below, municipalities need to amend their Municipal Development Plan (MDP) policies. Based on the Subcommittee's study of relevant legislation, statutory planning documents and land use bylaw regulations currently used by planners and developers in Alberta, the Legislation and Policy Committee recommends that municipalities revise their MDPs to incorporate the following policy statements. The policy statements can then be translated into regulations

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<sup>1</sup> *Land Use Policies, Order in Council 522 /96.*

<sup>2</sup> *Municipal Government Act, R.S.A. 2000, c.M-26.*

<sup>3</sup> Land Use Framework: Sustainable Resource Development, online service at [www.gov.ab.ca](http://www.gov.ab.ca).

<sup>4</sup> Government of Alberta, *Water For Life: Alberta's Strategy for Sustainability*, (Edmonton: Government of Alberta, 2003).

## Municipal Development Plan Policy Statements

These municipal planning and development policies integrate protection of natural environment features and water resources into MDPs in accordance with the provincial *Land Use Policies*.

The municipality will:

1. identify and map all significant natural environment features and water resources, including wetlands, riparian lands and reserve lands located within municipal boundaries. An inventory of such resources will be kept current.
2. in consultation with local stakeholders, and provincial authorities, initiate the development and implementation of a watershed management policy and plan for the natural environment features and water resources in its jurisdiction, including wetlands, riparian lands and reserve lands identified and mapped in accordance with Clause 1.
3. prescribe, in accordance with clause 640(4)(l) of the MGA, building development setbacks, established through scientific investigation by a Qualified Water and Aquatic Environmental Specialist (QWAES) in proximity to the natural environment features and water resources including wetlands, riparian lands and reserve lands identified and mapped in accordance with Clause 1. Buildings within the building development setbacks will be prohibited or regulated and controlled.
4. without restricting the generality of Clause 3, prescribe a minimum building development setback from identified and mapped natural environment features and water resources, which setbacks will be established by a QWAES as necessary to:
  - a. provide public access;
  - b. prevent pollution (protect water quality from, but not limited to, degradation through sedimentation and eutrophication); or
  - c. sustain existing ecological functions necessary for healthy riparian lands and a healthy aquatic environment.
5. all wetlands identified and mapped in accordance with Clause 1 shall be classified in accordance with the “Steward and Kantrud Wetland Classification System”.
6. work with the Province to protect all wetlands within the municipality in accordance with the municipality’s open space/green space plan. Wetlands should be retained *in situ* in their natural state.
7. except where authorized by the federal or provincial government, prohibit the excavation or filling in of all wetlands, riparian lands and reserve lands in accordance with clause 640(4) (k) of the MGA.
8. require, during subdivision, that private landowners dedicate the beds and shores of temporary wetlands as established by an Alberta Land Surveyor plus a minimum 6 metre strip of land or wider as established by a QWAES from the “bank” of such wetlands as environmental reserves.
9. prohibit stockpiling of materials within 6 metres, or greater distances as established by a QWAES, of a temporary wetland or within 30 metres, or greater distance as established by a QWAES of a semi-permanent or permanent wetland.



10. create a Natural Area Land Use District (NALUD designation), which may include natural environment features and water resources including wetlands, riparian lands and reserve lands identified and mapped in accordance with Clause 1, and which may contain lands within building development setbacks created in accordance with Clauses 3 and 4. NALUDs will have prescribed permitted and discretionary uses. Lands that are marshy and low-lying lands, including aquifers, springs and groundwater seeps that exist as private land holdings may be included in NALUDs.
11. require the development industry to minimize and mitigate impacts of subdivision and development on lands within 30 metres of NALUDs or greater as established by a QWAES, through land use regulations requiring “low impact development technologies”.
12. require a stripping and grading development permit for all stripping and grading of lands in preparation for subdivision or development. Prior to issuing stripping and grading development permits, proponents will be required to confirm that the aquatic environment will not be adversely affected by the activity.
13. prevent compaction of soils during stripping and grading activities that may interfere with natural groundwater recharge. In an identified groundwater recharge area, no stripping and grading will be permitted.
14. require a regulated percentage of naturescaping and a regulated percentage of permeable surfaces in all new and redeveloping development sites.
15. regulate post development stormwater flows amount to a no net increase in the total volume or rate of water flowing offsite or to receiving natural environment features and water resources including wetlands, riparian lands and reserve lands identified and mapped in accordance with Clause 1. The municipality will require site-specific Stormwater Site Implementation Plans (SSIPs) that comply with the municipal Master Drainage Plan(s), and which shall include best management practices, “low impact development technologies” and post development maintenance plans. Except where authorized by federal or provincial governments, naturally occurring wetlands will not be used as receptors of untreated stormwater.
16. require treatment of stormwater prior to discharge in receiving natural environmental features and water resources, including wetlands, riparian lands and reserve lands identified and mapped in accordance with Clause 1, and lands identified and mapped in accordance with Clause 3.
17. regulate and control public access and use of reserve lands.
18. use and develop all reserve lands in accordance with the land use bylaw.

# **TEMPLATE OF LAND USE BYLAW REGULATIONS**

## **1.0 GENERAL LAND USE REGULATIONS AND PROVISIONS**

### **1.1 APPLICATION**

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

### **1.2. DEFINITIONS**

In this section:

- (1) “aquifer” is an underground water-bearing formation that is capable of yielding suitable amounts of useable water for domestic, livestock, municipal or industrial use. There are four main types of aquifer:
  - a) “alluvial aquifer” contains groundwater under the direct influence of surface water.
  - b) “buried channel aquifer” is an interval that may or may not be directly influenced by the surface water environment, and contained within lower permeability soil deposits
  - c) “bedrock aquifer” is an interval that may or may not be connected to the surface water environment, and consists of sandstone, siltstone, shale, or any other lithified sediment that may yield water via natural permeability or fractures.
  - d) “useable aquifer” is an interval that yields a sufficient quantity of water for domestic, agricultural or industrial use, and has a mineralization less than 4,000 mg/L Total Dissolved Solids.
- (2) “bed and shore” means the land covered so long by water as to wrest it from vegetation or as to mark a distinct character on the vegetation where it extends into the water or on the soil itself.
- (3) “building” means and includes everything constructed or placed on, in, over or under land, but does not include a highway or road or a bridge that forms part of a highway or road.
- (4) “development” means
  - (i) an excavation or stockpile and the creation of either of them,
  - (ii) a building or an addition to or replacement or repair of a building and the construction or placing of any of them on, in over or under land,
  - (iii) change of use of land or a building or an act done in relation to land or a building that results in or is likely to result in a change in the use of the land or building, or

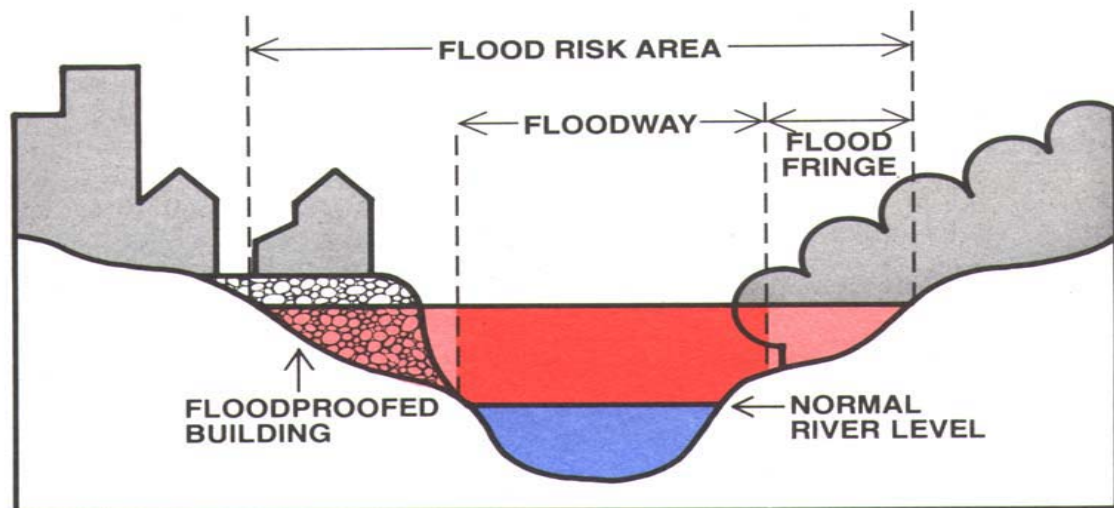
- (iv) a change in the intensity of use or a building or an act done in relation to land or a building that results in or is likely to result in a change in the intensity of use of the land or building.
- (5) “environmental reserve” means the land designated as environmental reserve by a subdivision authority or a municipality under provisions of the *Municipal Government Act*.
- (6) “environmental reserve easement” means an easement created under the provisions of the *Municipal Government Act*.
- (7) “escarpment” means a steeply sloping area associated with a slope of 15% or greater that is separating two comparatively level or more gently sloping areas, and may contain isolated pockets of lesser sloped terrain and includes ravines, gullies, coulees, side draws, and other similar features.
- (8) “escarpment protection plan” means a plan prepared by the municipality that includes inventories and maps of all escarpment zones in the municipality and provides policy and specific plans and engineering considerations for use and development of lands within the escarpment zones.
- (9) “escarpment setback” means a line established by the Development Authority based on a geotechnical assessment by a qualified geotechnical professional defining the closest point to the escarpment toe of slope or top of bank where subdivision or development may occur safely.
- (10) “escarpment zone” means a geographical area which includes
  - (a) an escarpment;
  - (b) an area adjacent to the escarpment crest equal to two times the height of the escarpment or 15 m (49.21 ft.) whichever is greater;
  - (c) an area adjacent to the escarpment equal to one half the height of the escarpment or 15 m (49.21 ft.) whichever is greater.

An escarpment zone identifies an area which will require a geotechnical assessment prior to consideration of subdivision in accordance with the municipality’s open space/green space plan and/or development applications.
- (11) “flood fringe area” means one of the two zones in the flood risk area where lands could be inundated by a 1 in 100 year flood event, and where flood waters are shallower (less than 1 m deep) with lower velocity (typically less than 1 m/s) than the floodway area, causing less significant damage to human life or property.
- (12) “flood risk area” means lands that may be inundated by a 1 in 100 year flood event, as identified through the Canada Alberta Flood Reduction Program or a hydraulic evaluation undertaken by a qualified water resources professional. The



flood risk area may include an ice hazard zone, which identifies those areas subject to damage from ice movement.

- (13) “flood risk area management plan” means a plan prepared by the municipality in consultation with the Province in accordance with the Canada - Alberta Flood Reduction Program. A Flood Risk Area Management Plan includes inventories and maps of all flood risk areas, including meander belts if deemed appropriate, in the municipality and provides policy, specific plans and engineering considerations for use and development of lands within the flood risk areas.
- (14) “floodway” means one of the two zones in the flood risk area where there is the greatest risk of personal injury or damage to property. Flood waters in this area are deep (typically more than 1 m deep), move with greatest velocity (typically more than 1 m/s) and cause significant damage to human life, land or property.



From Canada - Alberta Flood Reduction Program

- (15) “groundwater springs and seeps” means identified and mapped areas of land where groundwater naturally rises and flows freely from or oozes to the land surface.
- (16) “hazardous lands” means lands which are, or may be inappropriate for (urban) development by reason of having inherent or natural environmental hazards such as susceptibility to flooding, erosion, poor drainage, organic soils, geotechnical instability by virtue of soil type and/or slope, or any physical condition or limitation and which, if developed, may lead to the deterioration or degradation of the environment, loss of land and property damage or loss of life. Hazardous lands include lands containing springs and groundwater seeps.
- (17) “legal bank” means the bank of a wetland as determined by an Alberta Land Surveyor in accordance with the *Surveys Act*, R.S.A. 2000, c. S-40.

- (18) “low impact development strategies and technologies” mean those strategies and technologies endorsed by and aiming to meet the objectives of the Alberta Low Impact Development Partnership.
- (19) “meander belt” means and includes the land area on either side of a watercourse representing the farthest potential limit of channel migration. Areas within the meander belt may someday be occupied by the watercourse; areas outside the meander belt will not. (Parish Geomorphic 2004)
- (20) “municipal reserve” means the land designated as municipal reserve under provisions of the *Municipal Government Act*.
- (21) “municipal and school reserve” means the land designated as municipal and school reserve under provisions of the *Municipal Government Act*.
- (22) “natural area” means lands in a natural state where buildings and development are prohibited or restricted.
- (23) “naturally occurring wetland” means an area where water has accumulated or does accumulate to water elevations documented to have occurred under natural conditions.
- (24) “natural environment features” means and includes but is not limited to all lands within the jurisdiction of the municipality that are significant ravines, valleys, stream corridors, lakeshores, wetlands and other unique landscape areas. Without restricting the generality of the foregoing, natural environment features include:
- (a) a swamp;
  - (b) marshy and low-lying lands;
  - (c) wetlands (temporary, semi-permanent and permanent);
  - (d) lands subject to flooding, including flood risk areas, floodways, flood fringes, and natural meander belts;
  - (e) a gully, ravine, or coulee;
  - (f) a natural drainage course;
  - (g) an escarpment; ;
  - (h) riparian lands adjacent to watercourses and natural drainage courses;
  - (i) hazardous lands;
  - (j) unstable lands;
  - (k) lands subject to subsidence; and
  - (l) natural groundwater recharge areas or features including glacial moraines, kames, eskers, or near-surface sand and gravel deposits greater than 3 m in thickness

- (25) “naturescaping” means the modification and enhancement of a site or development through the use of natural indigenous vegetation such as trees, shrubs, hedges, grasses and other groundcover in conjunction with absorbent landscaping including permeable or pervious surfacing material such as brick, stones, wood and similar indigenous landscaping materials.
- (26) “no net loss” means the principle of ensuring that the total wetland inventory in the community remains stable through mitigation, which is a process for conserving wetlands by applying a hierarchical progression of alternatives, which includes avoiding impacts, minimizing unavoidable impacts, and compensating for impacts that cannot be avoided.
- (27) “pesticide” means
- (i) a substance that is intended, sold or represented for use in preventing, destroying, repelling or mitigating any insect, nematode, rodent, predatory animal, parasite, bacteria, fungus, weed or other form of plant or animal life or virus, except a virus, parasite, bacteria or fungus in living people or animals,
  - (ii) any substance that is a pest control product within the meaning of the *Pest Control Products Act* (Canada) or is intended for use as such a pest control product,
  - (iii) any substance that is a plant growth regulator, a defoliant or a plant desiccant,
  - (iv) a fertilizer within the meaning of the *Fertilizers Act* (Canada) that contains a substance referred to in subclause (i), (ii) or (iii), and
  - (v) any other substance designated as a pesticide in the regulations,
- but does not include a substance that is intended, sold or represented for use in potable water to prevent or destroy bacteria, parasites or viruses if the substance is not a pest control product within the meaning of the *Pest Control Products Act* (Canada);
- (28) “pollution” means point and non-point source impacts on the environment from substances such as sediments, nutrients, pesticides and toxic chemicals that typically reach a watercourse by surface or subsurface flows through adjacent lands, and the unauthorized release of any “deleterious substance” as defined in the *Fisheries Act (Canada)*, or the unauthorized “release” of any “substance” whether non-point or otherwise that may cause an “adverse effect” under provisions of the *Environmental Protection and Enhancement Act*.

- (29) “qualified professional” means an certified expert with training and certification through a professional organization in a particular field of scientific study, and includes all practitioners licensed in the province of Alberta by a recognized agency and providing professional services within their particular area of expertise;
- (30) “qualified wetland aquatic environment specialist” (QWAES) means an expert with detailed knowledge of the aquatic environment, wetland soils, wetland species, hydrology and riparian lands adjacent to wetlands that perform as habitat and their management and assessment.
- (31) “reserve lands” means environmental reserve, municipal reserve, school reserve, or municipal and school reserve.
- (32) “riparian lands” means the 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 the green zones around lakes, rivers and wetlands. They are the transitional zone between surface water and drier uplands and play a vital role in the healthy functioning of both.
- (33) “roads” means land
- (i) shown as a road on a plan of survey that has been filed or registered in a land titles office, or
- (ii) 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 MGA.
- (34) “storm drainage system” means any system for collecting, storing and disposing of storm drainage, and includes
- (a) the sewer and pumping stations that make up the storm drainage collection system,
- (b) the storm drainage storage, management and treatment facilities that buffer the effects of the peak runoff, or improve the quality of the stormwater,
- (c) the sewers and pumping stations that transport storm drainage to the location where it is treated or disposed of, and
- (d) the storm drainage outfall structures.
- (35) “stormwater management master drainage plan” (the SMMDP) means the municipal master drainage plan(s) created by a qualified stormwater management professional licensed to practice in the province of Alberta. The SMMDP

manages the planning and operations of the municipal storm drainage system, and must

- (a) consider functional stormwater management areas;
- (b) identify local environmental resources;
- (c) conform to regional watershed and/or water management plans;
- (d) identify control levels for stormwater best management practices (BMPs);
- (e) identify applicable BMPs;
- (f) identify operation and maintenance requirements and responsibilities; and
- (g) must include low impact development strategies and technologies that are scientifically proven for local landscape and climate conditions.

(36) “stormwater site implementation plan” (the SSIP) means the plan prepared by a qualified stormwater management professional for a specific development area. The SSIP must include:

- (a) a detailed design of BMPs and low impact development initiatives;
- (b) approvals obtained for BMPs;
- (c) mitigative measures established for environmental protection;
- (d) a plan for construction of stormwater control facilities;
- (e) an operation and maintenance plan for any BMPs and low impact development initiatives including responsibilities; and
- (e) stormwater management strategies provided in the SMMDP.

(37) “toe of slope” means the transition line where the lower portion of the escarpment land changes to less than 15% slope.

(38) “top of escarpment bank” means the transition line where the upper portion of the escarpment land changes to less than 15% slope.

(39) “water body” means any location where water flows or is present, whether or not it is continuous, intermittent, or occurs only during a flood, including but not limited to wetlands and aquifers. A major water body is a lake such as Buffalo Lake, or a river such as the Red Deer River, the Athabasca River or the North Saskatchewan River. A minor water body is a temporary wetland or a small creek less than 3 metres across from legal bank to legal bank.

(40) “watercourse” means

- (a) the bed and shore of a river, stream, lake, creek, lagoon, swamp, marsh or other natural body of water, or
- (b) a canal, ditch, reservoir or other man-made surface feature whether it contains or conveys water continuously or intermittently.

A major watercourse is the bed and shore of a lake such as Buffalo Lake, or a river such as the Red Deer River. A minor watercourse is the bed and shore of a

temporary wetland or a small creek less than 3 metres across from legal bank to legal bank.

- (41) “water resources” means and includes lakes, river, and streams, their beds and shores, wetlands, groundwater, reservoirs, and canals. Without restricting the generality of the foregoing, water resources include
  - (a) wetlands;
  - (b) water bodies;
  - (c) watercourses;
  - (d) aquifers;
  - (e) springs; and
  - (f) groundwater springs and seeps.
- (42) “watershed” means the area of land that catches precipitation and drains into a larger water body such as a marsh, stream, river or lake.
- (43) “wetland” means land having water at, near, or above the and surface or which is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained (hydric) soils, hydrophytic vegetation, and various kinds of biological activity that are adapted to the wet environment. Degraded wetlands may not show all of these characteristics, but remain important.
- (44) “wetland loss and riparian land loss” means and includes
  - (a) disturbing, filling in, altering or physically draining a wetland or riparian area;
  - (b) stripping and grading and destruction of riparian lands; and
  - (c) any type of interference with the hydrology to and from the wetland or the riparian lands.

### **1.3 SUBDIVISION AND DEVELOPMENT OF NATURAL ENVIRONMENT FEATURES AND WATER RESOURCES**

#### **1.3.1 Special Planning Study Requirements**

- (1) Municipal Environmental Impact Statement  
A municipal environmental impact statement shall be required in accordance with the Municipal Development Plan to the satisfaction of the Development Authority prior to all redesignation, development or redevelopment of lands within 100 metres of natural environment features and water resources.

- (2) Construction Management Plan  
A construction management plan shall be required prior to commencement of all development and redevelopment within 100 metres of natural environment features and water resources.
- (3) Stormwater Site Implementation Plan  
A stormwater site implementation plan (SSIP), prepared by a qualified stormwater management professional shall be required for all development and redevelopment not currently serviced under a Stormwater Management Master Drainage Plan (SMMDP). The SSIP must be consistent with the SMMDP.

### **1.3.2 Development Regulations and Provisions for Natural Environment Features and Water Resources**

#### **1.3.2.1 General Regulations**

- (1) No stripping, grading, placing or removal of fill of any kind, whether originating on the site or elsewhere, shall be permitted on or within natural environment features or water resources, or on or within 100 metres of natural environment features and water resources unless authorized or permitted by federal or provincial law.
- (2) Storage of any deleterious substance as defined in the *Fisheries Act (Canada)* and the *Environmental Protection and Enhancement Act* or any substance that may cause pollution as defined is prohibited on or within natural environment features or water resources, or on or within 100 metres of natural environment features, or water resources unless authorized or permitted by federal or provincial law.
- (3) No outside storage is permitted on or within natural environment features or water resources, or on or within 100 metres of natural environment features or water resources.

#### **1.3.2.2 Development in Riparian Lands**

- (1) Restrictions on use:  
Other than uses authorized or permitted by federal or provincial laws, only the following uses are permitted in riparian lands:
  - (a) existing uses, buildings, and structures;
  - (b) existing extensive agriculture;
  - (c) existing parks and playgrounds;
  - (d) existing recreational facilities and associated surface parking; areas;
  - (e) existing public and quasi-public utility installations and facilities; and
  - (f) existing roads;
  - (g) natural areas; and
  - (h) pathways.



- (2) Discretionary Uses:
  - (a) Roads; and
  - (b) Public parks.
- (3) Except for maintenance to buildings and structures listed as permitted uses in clause 1.3.2.2 (1), and roads and public parks in clause 1.3.2.2(2), no new development shall be permitted in riparian lands.
- (4) If development occurs in riparian lands in accordance with subsection 1.3.2.2, the developer shall be required to avoid riparian lands wherever possible, to mitigate the extent of the disturbance on riparian lands when avoidance is not possible, and when avoidance and mitigation are not possible to construct an equivalent riparian facility to replace the riparian land that was destroyed through development. The Development Authority will ensure that the policy of “no net loss” is adhered to for all developments occurring in riparian lands.

### **1.3.2.3 Development in Wetlands**

- (1) Restrictions on use:

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

  - (a) existing uses, buildings, and structures;
  - (b) existing extensive agriculture;
  - (c) existing parks and playgrounds;
  - (d) existing public and quasi-public utility installations and facilities;
  - (e) existing roads and pathways; and
  - (f) natural areas.
- (2) Discretionary Uses:
  - (a) Roads; and
  - (b) Public parks.
- (3) Except for maintenance to existing buildings and structures listed as permitted uses in clause 1.3.2.3(1), or roads and public parks in clause 1.3.2.3(2), no development shall be permitted in wetlands.
- (4) If development occurs in a wetland in accordance with subsection 1.3.2.3, the developer shall be required to avoid wetlands wherever possible, to mitigate the extent of the disturbance on wetlands when avoidance is not possible, and when avoidance and mitigation are not possible to construct an equivalent wetland facility to replace the wetland that was destroyed through development. The Development Authority will ensure that the policy of “no net loss” is adhered to for all developments occurring in wetlands.

**(Comment: Wetland complexes should be preserved. Every municipality should have an Open Space/Green Space Plan).**

#### **1.3.2.4 Flood Risk Area Regulations**

- (1) No stripping, grading, placing or removal of fill of any kind, whether originating on the site or elsewhere, shall be permitted within 100 metres of flood risk areas.
- (2) Storage of any deleterious substance as defined in the *Fisheries Act (Canada)* and the *Environmental Protection and Enhancement Act* or any substance that may cause pollution as defined is prohibited within 60 metres of flood risk areas.
- (3) No development, including but not limited to roads, pathways, or other similar structures and hedging and other similar landscape elements shall be permitted in the flood risk area unless the proposed development meets the criteria established in the Flood Risk Area Management Plan.
- (4) No development will be permitted in the flood risk area if it is determined by a hydraulic engineering study that such development will adversely affect the hydraulic efficiency or capacity of the floodway, or adversely affect existing drainage courses in the flood fringe.
- (5) No outside storage is permitted in the flood risk area.

#### **1.3.2.5 Floodway Regulations**

- (1) Restrictions on Use:  
The following uses are permitted in the floodway:
  - (a) existing uses, buildings, and structures;
  - (b) existing extensive agricultural operations;
  - (c) existing parks and playgrounds;
  - (d) existing recreational facilities and associated surface parking;
  - (e) existing public and quasi-public utility installations and facilities;
  - (g) existing roads and pathways; and
  - (h) natural areas.
- (2) Discretionary Uses:
  - (a) Roads; and
  - (b) Public parks.
- (3) New Buildings and Alterations:
  - (a) No new buildings or other structures shall be permitted in the floodway except for replacement of the existing footprint and volume of existing

- buildings and structures in the same locations provided that the flood hazard can be overcome by mitigative measures acceptable to the Development Authority in consultation with provincial authorities.
  - (b) Structures intended for flood or erosion control may be developed in the floodway at the discretion of the Development Authority in consultation with federal and provincial authorities.
- (3) Existing Buildings and Structures:  
No external alterations or additions to existing buildings or structures that might increase the obstruction to flood waters on that site or have a detrimental effect on the hydrological system or water quality shall be allowed.

### **1.3.2.6 Flood Fringe Regulations**

(**Comment:** Allowing any development in flood risk areas increases the inherent risk to society. Flood proofing of development sites may cause adverse affects to other landowners and the river system. The BRBC Legislation and Policy Committee does not support flood proofing to allow development to occur in flood risk areas. If floodproofing is allowed, best management practices should be followed in all cases.)

- (1) Restrictions on Use:  
The following uses are permitted in the flood fringe area:
- (a) existing uses, buildings, and structures;
  - (b) existing extensive agriculture;
  - (c) existing parks and playgrounds
  - (d) existing recreational facilities and associated surface parking; and
  - (e) existing public and quasi-public utility installations and facilities.
- (2) The following uses may be permitted in the flood fringe area, at the discretion of the Development Authority:
- (a) roads;
  - (b) pathways;
  - (c) public parks; and
  - (d) natural areas.
- (3) Floodproofing Flood Fringe Sites:
- (a) All development, including redevelopment, major alterations, and additions to existing structures shall be floodproofed to the design flood level prescribed in the Alberta Building Code plus 1m freeboard.
  - (b) All development, including redevelopment, major alterations, and additions to existing structures behind an approved floodproofing system shall be floodproofed to the design flood level prescribed in the Alberta Building Code plus 1m freeboard.

### **1.3.2.7 Development of Lands Identified in the Escarpment Protection Plan**

- (1) Development on hazardous lands or unstable or potentially unstable terrain as identified and provided in the Escarpment Protection Plan is prohibited.
- (2) The applicant shall submit a topographic and feature survey of the site as part of the application for redesignation, subdivision, or development of lands that contain escarpments and slopes greater than 15%. The survey shall include:
  - (a) slope analysis with contour intervals of 1metre;
  - (b) property lines;
  - (c) easements;
  - (d) water bodies or watercourses;
  - (e) ravines, gullies and coulees ;
  - (f) bedrock outcrops;
  - (g) wildlife and feature trees and shrubs;
  - (h) cliffs;
  - (i) ridgelines.
- (3) In areas with slopes over 15%, the Development Authority shall establish top of escarpment bank and toe of slope in accordance with the Escarpment Protection Plan. This information shall be included and mapped on the plan of subdivision and development site plans.
- (4) The Development Authority will establish an Escarpment Zone in accordance with the Escarpment Protection Plan, which includes:
  - (a) an escarpment;
  - (b) an area between the top of the escarpment bank and the slope stability line or 15 m, whichever is greater;
  - (c) an area between the toe of the slope and the slope stability line or 15 m, whichever is greater; and.
  - (d) areas if geotechnical risk, as identified in the geotechnical assessment completed by a qualified geotechnical professional, which require a suitable setback or suitable treatment prior to development.
- (5) Except as determined by the Development Authority, no development, except for park benches, storm drainage facilities, swales, connective work required for municipal purposes or remedial or restorative work, shall be permitted within an Escarpment Zone.
- (6) An Escarpment Zone identifies an area that will require a geotechnical assessment prior to consideration of redesignation, subdivision, or development permit applications for lands within 30 metres of the top of escarpment bank. A detailed geotechnical assessment prepared by a qualified geotechnical professional shall be required in order to:

- (a) determine slopes in excess of 15% grade. This slope analysis should be provided in increments of 0-5%, greater than 5-10%, greater than 10-15%, greater than 15-20%, and greater than 20%;
  - (b) demonstrate that the entire slope is stable to a factor of safety (FS) of 1.5 or greater ( $FS > 1.5$ );
  - (c) identify subsurface soil conditions;
  - (d) identify the slope stability line;
  - (e) identify mitigative measures; and
  - (f) map the top of escarpment bank and toe of slope as established by the Development Authority.
- (7) The following minimum setbacks shall be established from the top of the escarpment bank:
  - (a) development setback of 30 m;
  - (b) subdivision property line setback of 24 m;
  - (c) a geotechnical investigation, approved by the Development Authority, is required if the applicant proposes to vary the established development and property line setbacks, as outlined in clause 1.3.1.7 (7)(a) and (b);
  - (d) notwithstanding clause 1.3.1.7(7) subdivision property lines and developments, including swimming pools, shall not be located within 15 m of the top of the escarpment bank.
- (8) The following minimum setbacks shall be established from the toe of slope:
  - (a) development shall be setback 24 m;
  - (b) subdivision property lines shall be setback 15 m;
  - (c) a geotechnical investigation, approved by the Development Authority, is required, if the applicant proposes to vary the established development and property line setbacks, as outlined in Section 1.3.1.7(8) (a) or (b).
- (9) Notwithstanding Section 1.3.1.7(8)(b), subdivision property lines and developments, including swimming pools, shall not occur within 15 m of the toe of slope.
- (10) Where a previous developer has submitted a geotechnical assessment, the Development Authority may require the new developer to submit additional geotechnical assessments based upon technical requirements or site conditions.

#### **1.4 Drainage and Stormwater Management**

- (1) A SSIP for a proposed development, consistent with the SMMDP must be prepared by a qualified stormwater management professional, and provided to Development Authority at the time of application for redesignation, subdivision, or development.

- (2) If a SMMDP does not exist, it shall be prepared by a qualified stormwater management professional on behalf of the municipality in question, or on behalf of the developer, to the satisfaction of the Development Authority and all relevant provincial and federal approving agencies.
- (3) A SSIP shall include best management practices and may include low impact development strategies and technologies for:
  - (a) retaining stormwater on-site on developed lots or within the subdivision, both during and post-construction;
  - (b) treating stormwater prior to discharge into water bodies, watercourses or riparian lands;
  - (c) preventing pollution of water bodies, watercourses or riparian lands;
  - (d) minimizing or mitigating impacts of stormwater runoff on adjacent environmentally sensitive lands and hazardous lands, and which shall be adhered to in all development plans, construction management plans and post-development maintenance plans.
- (4) In addition to general requirements provided in paragraph 1.4(3), a SSIP must include, but is not limited to, the following:
  - (a) a geotechnical investigation to determine soil characteristics and the potential for erosion and bank instability of any receiving water body or watercourse;
  - (b) hydrogeological investigations to determine the recharge / discharge characteristics of groundwater and general flow patterns;
  - (c) inventory of existing natural drainage courses, any overland flow routes and other water bodies;
  - (d) recommendations of best management practices and low impact development initiatives, an implementation plan, and post-development monitoring plan for erosion and sediment control;
  - (e) recommendations and an implementation plan to achieve 25% pervious surfaces in developed areas for each lot and for total subdivision area;
  - (f) recommendations and an implementation plan of naturescaping component for a minimum 25% of all required landscaped areas post development;
  - (g) recommendation of most appropriate streetscapes, stormwater retention ponds and landscapes to achieve a no-net increase in volume and rate of flow off-site;
  - (h) recommendations to minimize soil compaction during stripping, grading, servicing and during development; and
  - (i) post-development maintenance plans, including but not limited to action plans, goals and strategies for monitoring, maintaining and funding stormwater management facilities and structures, best management practices and low impact development initiatives for post-development conditions.

## **1.5 USE AND DEVELOPMENT OF RESERVE LANDS**

### **1.5.1 Application**

Except where otherwise stated in this Bylaw, the municipality's development and use of reserve lands shall be in accordance with this section.

### **1.5.2 General regulations for use and development of reserve lands**

- (1) The municipality is the owner, and has care, control and management of reserve lands in the municipality, except registered environmental reserve easements in which case the municipality has a registered interest in the environmental reserve easement.
- (2) A person who has an environmental reserve easement registered on the title to his property must preserve the lands in their natural state.
- (3) The municipality shall enforce all environmental reserve easements.
- (4) No person shall operate an off-highway vehicle on reserve lands, unless authorized by the municipality for maintenance and emergency access.
- (5) No person shall mow or remove natural vegetation from reserve lands unless authorized by the municipality.
- (6) No person shall plant any form of vegetation on reserve lands unless authorized by the municipality.
- (7) No person shall apply pesticides on reserve lands unless authorized by the municipality.
- (8) A person may use reserve lands for designated day use or authorized camping purposes only, and a commercial use permit or non-profit group use permit shall be obtained for any commercial activity or non-profit group activity on reserve lands.
- (9) A person who uses or develops reserve land in the municipality without prior authorization or permit from the Development Authority, or the school authority if the reserve land is a municipal and school reserve, commits an act of trespass and an offence subject to orders and penalties under the provisions of this Bylaw.

### **1.5.3 Restrictions on Use on Environmental Reserve Lands**

- (1) The following uses are permitted on environmental reserve lands:
  - (a) natural areas; and



- (b) public parks.
- (2) The following uses may be permitted on environmental reserve lands in accordance with the *Municipal Government Act*:
  - (a) public and quasi-public utility installations and facilities;
  - (b) roads and pathways.
- (3) When environmental reserve lands are to be used as public parks, public and quasi-public utility installations and facilities or roads and pathways, the municipality shall ensure that as much as possible of the natural terrain and native vegetation, including native grasses, shrubs and trees are maintained during development.

#### **1.5.4 Restrictions on Use on Municipal, or Municipal and School Reserve Lands**

- (1) The following uses are permitted on municipal, or municipal and school reserve lands:
  - (a) public parks;
  - (b) public recreation areas;
  - (c) school authority purposes;
  - (d) to separate areas of land that are used for different purposes; and
  - (e) natural areas.
- (2) When municipal and municipal and school reserve lands are to be used as public parks, public recreation areas, and school authority purposes, the municipality shall ensure that as much as possible of the natural terrain and native vegetation, including native grasses, shrubs and trees are maintained during development.

#### **1.5.5 Compliance and Enforcement**

- (1) Where the Development Authority discovers that a development or use of reserve lands is not in accordance with this Subsection, the Development Authority may, by notice in writing, order the person or persons responsible for the contravention to:
  - (a) stop the development or use of the land in whole or in part as directed by the notice;
  - (b) demolish, remove, or replace the development and restore the natural environment features of the lands; and
  - (c) take such other measures as are specified in the notice so that the development or use of the lands is in accordance with the Act, the regulations, a development permit, a commercial use permit, a non-profit group use permit, a subdivision approval, or this Bylaw, as the case may be.

- (2) Where a person fails or refuses to comply with an order directed to him under Clause 1.5.5(1) or an order of the Subdivision and Development Appeal Board within the time specified, the Development Authority may, in accordance with the Act and the Land Use Bylaw, enter upon the private land and take such action there as is necessary to carry out the order.
- (3) Where the Development Authority carries out an order pursuant to section 1.5.5, the Council shall cause the costs and expenses incurred in carrying out the order to be placed on the tax roll as an additional tax against the adjacent property concerned and that amount shall be collected in the same manner as taxes on the land.
- (4) A person who contravenes any provision of section 1.5 either by doing something which he is prohibited from doing or failing to do something which he is required to do is guilty of an offence under the provisions of the Land Use Bylaw.

## **1.6 LANDSCAPING**

- (1) All residential developments shall require a naturescaping component equal to or greater than 25% of all required landscaped areas.
- (2) All multi-unit residential developments shall require a naturescaping component equal to or greater than 50% of all required landscaped areas.
- (3) All non-residential developments shall require a naturescaping component of 100% of all required landscaped areas.
- (4) All new development and redevelopment shall have a minimum of 0.45 metres (18 inches) of topsoil applied to a lowered subgrade layer to enable precipitation, stormwater or meltwater to permeate all required landscaped areas.
- (5) All new development and redevelopment shall incorporate outdoor water conservation technology, including, but not limited to rainbarrels and rainwater infiltration irrigation systems to ensure that stormwater from hard surface areas can be utilized for irrigation of all required landscaped areas.\*

\* Landscaping provisions are subject to emerging policy and legislation.

## **2.0 SPECIFIC BUILDING DEVELOPMENT SETBACKS**

### **2.1 Application**

The provisions in this Section apply to all lands and buildings in all land use districts.

### **2.2 General Regulations for Specific Building Development Setbacks**

- (1) Except when a greater distance is required in Section 1.0 of this Bylaw, a minimum setback of 100 metres is required from the bank of a major water body or watercourse. If, under unique planning circumstances, a Development Officer is satisfied by submission of a professional environmental and geotechnical assessment that a lesser setback may be warranted, the setback may be reduced. Should a professional assessment determine the need for a setback greater than 100 metres, a Development Officer shall require it. Within the required setback, any land disturbance shall be managed to reduce environmental effects and manage risk.
- (2) A minimum setback of 30 metres is required from the bank of any other water body or watercourse unless a Development Officer is satisfied by submission of a professional environmental and geotechnical assessment that a lesser setback may be warranted. Should a professional assessment determine the need for a setback greater than 30 metres a Development Officer shall require it. Within the required setback, any land disturbance shall be managed to reduce environmental effects and manage risk.
- (3) The minimum setback in subsection 2.2 may be reduced or eliminated at the discretion of a Development Officer where a water body or watercourse is considered to be of a minor nature and there is no risk of adverse effect on development or the environment as determined by a qualified professional. The setback may be reduced where a qualified professional determines that the structure (such as a boathouse) is minor and is necessary for the proposed location.

- 2.3 A Development Officer may increase any required setback or yard for any permitted or discretionary use where the regulation in the Land Use District would allow development that may be detrimental to the preservation of natural resources or water resources may be affected by being in a floodplain or in proximity to steep or unstable slopes, or may increase the degree or hazard.

### **3.0 NATURAL AREA LAND USE DISTRICT**

#### **3.1 Purpose**

The purpose of this district is to provide for the preservation of natural environment features and water resources.

#### **3.2 Permitted Uses**

- (1) Public park;
- (2) Natural areas.

#### **3.3 Discretionary Uses**

- (1) Outdoor recreation facilities

#### **3.4 Subdivision and Development Regulations**

- (1) The maximum height 10 m
- (2) The minimum front yard is 6.0 m
- (3) The minimum side yard is 6.0 m
- (4) The minimum rear yard is 6.0 m

#### **3.5 Other Regulations**

- (1) In addition to the regulations listed above, the general development regulations of Section 1 apply.
- (2) Where a building is located within the land use district, the regulations in clause 3.4 shall apply.

# Legislative Authority for Template of Land Use Bylaw Regulations

## Desired outcome

Natural environment features and water resources will be protected from impacts of subdivision and development.

## Brief Summary of Enabling Legislation

### 1. Municipal Government Act

The *Municipal Government Act*, RSA 2000, c.M-26 (the “MGA”) includes enabling legislation for protection and management of water bodies within municipal jurisdictional boundaries as follows:

#### (1) Water bodies

“60 (1) Subject to any other enactment, a municipality has the direction, control and management of the rivers, streams, watercourses, lakes and other natural bodies of water within the municipality, including the air space above and the ground below (excepting mines and minerals)”.

#### (2) Part 17

Pursuant to the MGA, “Part 17: Planning and Development”, a municipality is required to prepare and adopt plans and bylaws to:

1. “achieve the orderly, economical and beneficial development, use of land and patterns of human settlement, and
2. maintain and improve the quality of the physical environment within which patterns of human settlement are situated in Alberta, without infringing on the rights of individuals for any public interest, **except to the extent that is necessary for the overall greater public interest.**” (MGA, Section 617).

A municipality with over 3,500 population has a hierarchy of “Statutory Plans” that they **must** prepare and adopt under Part 17. The first is the Municipal Development Plan. Section 632 of the MGA provides what a municipality **must** address in an MDP. It is not mandatory for a municipality to address “environmental matters within the municipality”- those matters may be included as “discretionary” matters. However it is in a municipality’s best interest to address environmental matters to minimize their exposure to environmental risks and liabilities.

A municipal planning authority must comply with the *Subdivision and Development Regulation*, and is provided with provincial guidance for planning and development of lands in proximity to water resources and other provincial interests in such documents as the “*Environmental Reference Manual for the Review of Subdivisions*”, November 1996.

Section 640 requires that all Alberta municipalities must have a land use bylaw that prohibits, or regulates and controls all land use and development of lands within the municipality. There are

several clauses in section 640 that provide tools for ensuring that natural environment features and water resources are protected, for example section 640(4)(1) that allows a municipality to develop building development setbacks from low lying or marshy areas.

## **2. Provincial Policies and Laws**

The Province, through its recent adoption of “*Water For Life: Alberta Strategy for Sustainability*”, has demonstrated that water resource management and protection of water quality and quantity, and the aquatic environment in all watersheds in Alberta is in the “overall greater public interest”.

A municipality is concerned with the development of **private lands** within its jurisdictional boundaries - the use and development of public land is managed and regulated by the Province pursuant to the *Public Lands Act*. The beds and shores of all naturally occurring lakes, rivers, streams, and permanent and naturally occurring bodies of water are **public lands**. Sustainable Resource Development (SRD) manages the use and development of the beds and shores up to the legal bank as determined by survey. The property in, and the right to divert and use all water, wherever found on the earth’s surface or under the earth’s surface is vested in the Province. Alberta Environment manages the water use and allocation system in Alberta and any development that disturbs or uses water must be approved.

A municipality cannot regulate, or develop bylaws or issue development permits under Part 17 for “confined feedlot operations or manure storage facilities” in Alberta as those facilities are developed, managed and regulated pursuant to the *Agricultural Operations Practices Act*.

### **(1) *Land Use Policies***

The *Land Use Policies* (“LUPs”) referenced in section 622 of the MGA, including sections 5: “The Natural Environment”, and 6.3 “Water Resources”:

## **5.0 THE NATURAL ENVIRONMENT**

### **Goal**

To contribute to the maintenance and enhancement of a healthy natural environment.

### **Policies**

1. Municipalities are encouraged to identify, in consultation with Alberta Environment, (sic) significant ravines, valleys, stream corridors, lakeshores, wetlands, and any other unique landscape area, and to establish land use patterns in the vicinity of these features, having regard to their value to the municipality and to the province.
2. If subdivision and development is to be approved in the areas identified in accordance with policy#1, municipalities are encouraged to, within the scope of

their jurisdiction, utilize mitigative measures designed to minimize negative impacts.

3. Municipalities are encouraged to identify, in consultation with Alberta Environment (sic) areas which are prone to flooding, erosion, landslides, subsidence, or wildfire and to establish appropriate land use patterns within and adjacent to these areas.
4. If subdivisions and development is to be approved in the areas identified in accordance with policy# 3, municipalities are encouraged to, within the scope of their jurisdiction, utilize mitigative measures to minimize the risk to health, to safety, and to loss due to property damage.
5. Municipalities are encouraged to identify, in consultation with Alberta Environment (sic) areas of significant fish, wildlife and plant habitat and to establish appropriate land use patterns designed to minimize the loss of valued habitat within and adjacent to these areas.
6. If subdivision and development is to be approved in the areas identified in accordance with policy #5, municipalities are encouraged to, within the scope of their jurisdiction, utilize mitigative measures to minimize the loss of habitat.

### **6.3 Water Resources**

#### **Goal**

To contribute to the protection and sustainable utilization of Alberta's water resources, including lakes, rivers, and streams, their beds and shores, wetlands, groundwater, reservoirs, and canals.

#### **Policies**

1. Municipalities are encouraged to identify, in consultation with Alberta Environmental Protection, significant water resources within their boundaries.
2. Municipalities are encouraged to determine appropriate land use patterns in the vicinity of the resources identified in accordance with policy #1, having regard to impacts on an entire watershed as well as local impacts.
3. If subdivision and development is to be approved in the vicinity of the resources identified in accordance with policy #1, municipalities are encouraged to, within the scope of their jurisdiction, incorporate measures which minimize or mitigate any negative impacts on water quality, flow and supply deterioration, soil erosion, and ground water quality and availability. Municipalities are also encouraged for facilitate public access and enjoyment of these water features, and to protect sensitive fisheries habitat and other aquatic resources.



All municipal statutory documents and actions taken by any decision maker or decision making body under the Part 17 to develop lands in a municipality must be consistent with the land with LUPs, in accordance with section 622 of the MGA.

**“Land use policies**

622(3) Every statutory plan, land use bylaw and action undertaken pursuant to this Part by a municipality, municipal planning commission, subdivision authority, development authority or subdivision and development appeal board or the Municipal Government Board must be consistent with the land use policies.”

**(2) Wetland Policy**

Wetlands protection in settled areas of Alberta is a goal of the Alberta Government. A policy document entitled “*Wetland Management in the Settled Area of Alberta: An Interim Policy*” 1993, states as its goal:

**“Wetland Management Goal**

The goal of Alberta Government is to sustain the social, economic and environmental benefits that functioning wetlands provide, now and in the future.”

The Interim Policy is divided into three major headings: Slough/Marsh Wetlands; Peatlands and Regional Management. Land use of settled areas in Alberta is generally determined by municipal government through Part 17 of the MGA. The policy document for protection of wetlands in settled areas of Alberta provides that the primary responsibility for wetland management activities is the Alberta Government. However, a municipality also has a responsibility under section 60 of the MGA to manage water resources within the municipal boundary. Since 1993, when the Interim Policy was released, the Province has issued a *Provincial Wetland Restoration/Compensation Guide*, Revised February, 2007, which gives direction to municipalities concerning mitigation of wetland loss through restoration of critical wetlands and compensation for wetland loss that cannot be avoided or minimized during development.

**(3) Environmental Protection and Enhancement Act, R.S.A. 2000, c. E-13.3 (EPEA)**

Stormwater is regulated under provisions of EPEA. In addition to the *Wastewater and Storm Drainage Regulation*, and *Wastewater and Storm Drainage (Ministerial) Regulation*, municipalities must also consider several guides and codes of practice for the design of storm drainage systems, for example the *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems*, December, 1997, the *Stormwater Management Guidelines for the Province of Alberta*, January, 1999, and the *Policies and Procedures Manual*, April 2001.

There are other federal and provincial laws and regulation that govern certain aspects of water resource management, for example, navigation and boating regulations, migratory birds, endangered species, private septic fields, water wells, etc. For more information on statutes and case law on topics of particular interest, visit CanLII's website at <http://www.canlii.org>