



# **Wetland Assessment and Impact Report Directive**

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June 2015

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| <b>Title:</b>                        | <b>Alberta Wetland Assessment and Impact Report Directive</b> |
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## Purpose

To provide clear instructions for preparation of a Wetland Assessment and Impact Report that is required as part of a wetland application.

## Policy Context

To support Alberta Wetland Policy and related directives, guides and tools.

## Enforcement/Compliance

All Applicants must use this directive when submitting a Wetland Assessment and Impact Report as part of a regulatory application to impact wetlands.

## Reference Documents

- *Water Act*
- Water (Ministerial) Regulation
- Water (Offences and Penalties) Regulation
- *Public Lands Act*
- Public Lands Administration Regulation
- Alberta Wetland Regulatory Requirements Guide
- Alberta Wetland Mitigation Directive
- Alberta Wetland Identification and Delineation Directive
- Alberta Wetland Rapid Evaluation Tool (ABWRET-A) Manual
- Alberta Wetland Classification System

## Citation

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## 1. Wetland Assessment Overview

As part of any application to impact wetlands, Applicants must ensure that a Qualified Wetland Science Practitioner (QWSP) has assessed all of the wetlands that may be impacted and prepared a Wetland Assessment and Impact Report. Applicants submit their Wetland Assessment and Impact Report in their regulatory application.

More information on the QWSP certification program is provided on the Alberta Wetland Policy Implementation website.

A QWSP must complete the following core components of a wetland assessment:

- 1) *Wetland identification and delineation* – all wetlands are identified, delineated and submitted to the regulatory body in accordance with the Alberta Wetland Identification and Delineation Directive.
- 2) *Wetland classification* – the class, form and/or type of all wetlands are determined and documented in accordance with the Alberta Wetland Classification System (AWCS).
- 3) *Relative wetland value*– the Alberta Wetland Rapid Evaluation Tool - Actual (ABWRET-A) is used to determine the relative value of each wetland.
- 4) *Species surveys* – Species surveys are conducted in accordance with Species Inventory Protocols if available, or other legislation. These surveys may require a specialist in botany or wildlife biology.
- 5) *Other surveys* – Other surveys may be requested by the regulatory body as needed. These surveys may require a specialist in hydrology, hydrogeology, limnology, soil sciences, or any other scientific field.

### 1.1. Wetland Identification and Delineation

The wetland boundary is defined as the furthest ecological extent of a wetland bordering upland or other non-wetland habitat, as indicated by a shift from hydric to non-hydric soils and water tolerant vegetation to upland vegetation in the majority of years. More than one wetland class may exist within a wetland boundary. For instance, a wetland may contain contiguous areas of swamp and marsh classes. Smaller upland interspersions within a wetland may also be included within a wetland's boundary.

In contrast, two discontinuous wetlands separated by non-wetland areas greater than the width (for fringe wetlands) or radius (for basin wetlands) of the larger wetland are individual wetlands.

If wetland indicators are conflicting or inconclusive (e.g. soils and vegetation), the QWSP must overestimate the wetland boundary, especially where human disturbances have encroached into the wetland.

Prior to the preparation of a wetland application, Applicants must submit a Shapefile of wetland boundaries to the regulatory body, who will return the relative value of each wetland back to the

Applicant. Reporting requirements for wetland identification and delineation are provided in Section 5.2.

## **1.2. Wetland Classification**

Wetland classification must be keyed out to at least the ‘form’ level for bogs, fens and swamps, in accordance with the AWCS. For marshes and shallow open waters, the ‘permanence type’ of the wetland must be classified (i.e. temporary, seasonal, semi-permanent, permanent or intermittent). As stated above, one or more wetland class, form and/or type may exist within a wetland boundary.

Applicants must submit wetland classifications of all wetlands to the regulatory body in accordance with reporting requirements stated in Section 5.3.

## **1.3. Relative Value Assessment (ABWRET-A)**

The Alberta Wetland Rapid Evaluation Tool - Actual (ABWRET-A<sup>1</sup>) is a rapid assessment survey method that must be used to calculate the relative value of a wetland. The relative value is derived from observation-based metrics that are derived from both Office (GIS) form and Field form components.

To complete ABWRET-A, QWSPs must complete the Field form of ABWRET-A, and submit it along with a digital Shapefile of wetland boundaries to the regulatory body (Step 3 in Figure 1). Shapefile submission requirements are provided in the Alberta Wetland Identification and Delineation Directive. On behalf of the Applicant/QWSP, the regulatory body will then complete the Office (GIS) form, collate the Office and Field form data, and compute the relative value of each wetland provided in the Shapefile (Step 3 in Figure 1). All the results will be provided back to the Applicant/QWSP (Step 4 in Figure 1) for them to use if they choose to submit a wetland application (Step 4 in Figure 1).

Applicants must submit ABWRET-A results of all wetlands to the regulatory body in accordance with reporting requirements stated in Section 5.4

### **Wetland assessment for activities requiring reclamation**

If the activity being proposed is subject to reclamation requirements under the *Environmental Protection and Enhancement Act* (EPEA), or an approval issued under EPEA, the *Public Lands Act*, or the *Water Act*, the Applicant is not required to complete the ABWRET-A assessment to determine the relative wetland value. All other components of a wetland assessment, including delineation, classification, and species surveys, must be completed.

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<sup>1</sup> The “A” in ABWRET-A stands for “actual” to distinguish it from a related wetland planning tool called ABWRET-E, which is used for planning purposes only

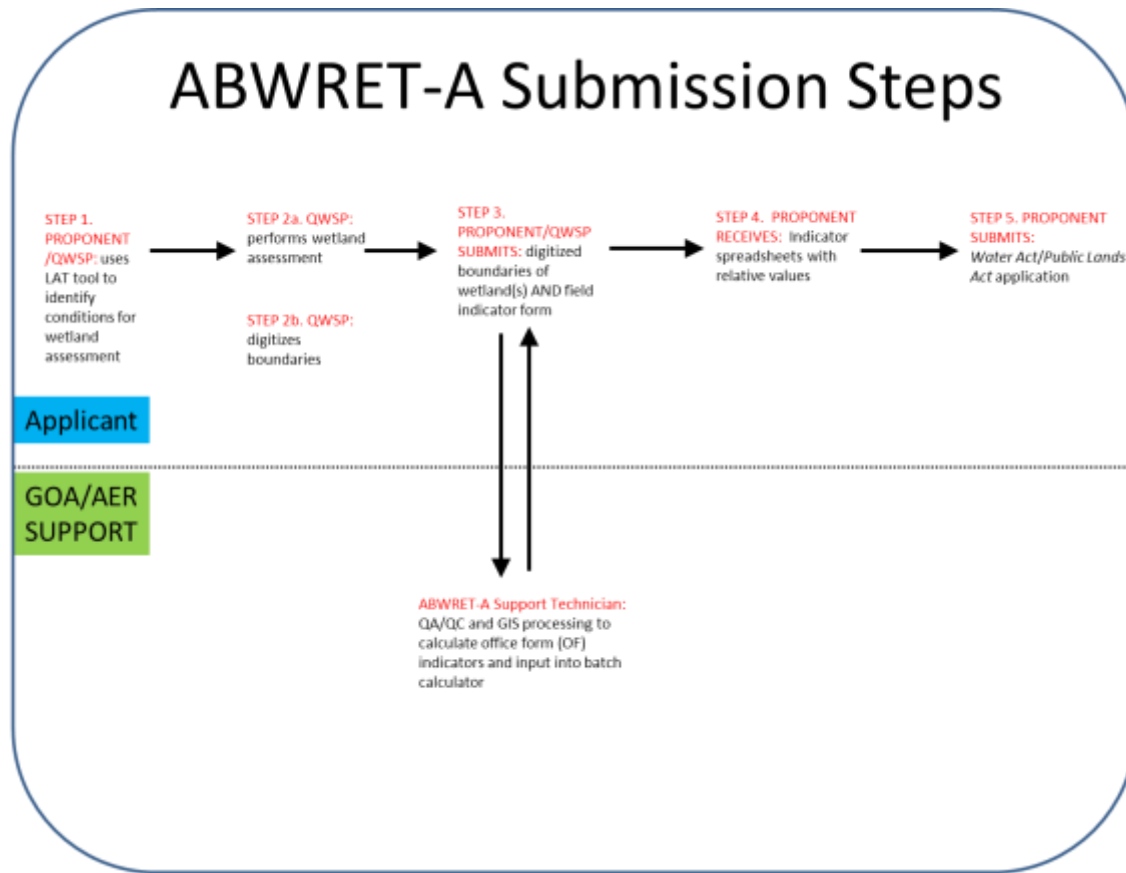


Figure 1. ABWRET-A submission steps

### 1.4. Species Surveys

Species surveys can range from general sweeps and inventories to detailed surveys of a wildlife or plant species. Where available, Applicants must complete a Landscape Analysis Tool (LAT) search to find out additional regulatory conditions to be met at the site of proposed impact (Step 1 of Figure 2 above). The LAT tool utilizes fisheries and wildlife sensitivity mapping layers to highlight areas of concern and intersecting points where conditions apply. These layers include the following but are not limited to:

- Piping plover areas\*
- Trumpeter swan lakes\*
- Burrowing owl range
- Key wildlife and biodiversity zones
- Caribou range\*
- Sensitive snake range

- Eastern short-horned lizard range
- Sensitive amphibian range\*
- Colonial nesting birds areas\*
- Special Access zones
- Greater Sage Grouse Habitat, Leks and Federal restriction areas
- Mountain goat and sheep ranges
- Grizzly bear ranges
- Sensitive raptor range
- Sharp-tailed grouse leks
- Swift fox range
- Ord's kangaroo rat range
- Endangered and Threatened Plants locations\*
- Long-toed salamander\* (future layer)
- Canadian toad\* (future layer)
- Fish maps\* (future layers)

\* Species or guilds that are either wetland-dependent or use wetlands as a key part of their life cycle

A report of LAT conditions and documentation of the Applicant's compliance with those conditions must be included in the WAIR report. Sensitive Species Inventory Guidelines, Inventory Protocols, and Submissions provide information on how to conduct and submit inventory surveys.

- [ESRD.Alberta.ca/fish-wildlife](http://ESRD.Alberta.ca/fish-wildlife)

If it is not within the scope of practice of the QWSP to perform a species assessment, a plant or wildlife expert may need to be hired to conduct species surveys.

Best professional judgment is expected when a LAT report includes conditions to perform surveys outside of the delineated wetland area (i.e. adjacent upland habitat). For example, if a wetland species spends a portion of its life history outside of the wetland habitat, inclusion of associated upland habitat may be required for a sufficient survey of the area.

Applicants must submit species survey results of all wetlands to the regulatory body in accordance with reporting requirements stated in Section 5.5.

## **2. Timing of field work**

The field portion of a wetland assessment must be completed within the growing season between April and October, during which time the present year's vegetative ground cover must be easily observed and growing above-ground. This timeframe allows some flexibility and professional discretion to consider differences in growing seasons across the latitudinal gradient. For example, it is possible to begin field work earlier in the year in the Grassland Region than in the Boreal Region.

Wetland field assessments performed outside of the vegetative growing season will not be accepted by the regulatory body. If the regulatory body makes an exception due to extenuating circumstances, the QWSP must provide a written statement that the wetland area and value are overestimated and that they accept that their work may be subject to a detailed audit by the regulatory body.

Additional field visits may be necessary to survey a species at a specific time of the day, season or year. Refer to Sensitive Inventory Guidelines, Inventory Protocols and Submissions.

## **3. Pre-existing disturbances to wetlands**

If ongoing temporary and reversible disturbances are occurring (e.g. tillage), QWSPs must assess the class and size of a wetland based on its expected state prior to disturbance. Interpretation of wetland boundary and class of a wetland should take into consideration long-term climate cycles and natural disturbances. QWSPs must interpret wetland boundaries on a base reference image that is representative of long-term conditions examined through a review of historical imagery, in accordance with the Alberta Wetland Identification and Delineation Directive.

In contrast, QWSPs must perform the ABWRET field form based on the present state of the wetland, regardless of any past or ongoing negative impacts.

## **4. Unauthorized impacts to wetlands**

Applicants or QWSPs may encounter previous unauthorized impacts to wetlands that should have been regulated by a *Water Act* or *Public Lands Act* approval. Any such previous or ongoing adverse effects to wetland(s) that were not authorized by a regulatory body must be brought into compliance prior to the consideration of a new *Water Act* or *Public Lands Act* application. Evidence of unauthorized activities such as drainage ditches, tile drainage, excavation, vegetation removal, fill material or other alterations and activities affecting a wetland must be reported to the province by calling the 24-hour reporting line at 1-800-222-6514 or by emailing [erc.environment@gov.ab.ca](mailto:erc.environment@gov.ab.ca).

## **5. Wetland Assessment and Impact Report Checklist**

At a minimum, Applicants must ensure the following information is provided in a Wetland Assessment and Impact Report as part of a wetland application.



## 5.1. General Information

- Name of QWSP who conducted the assessment and their professional designation
- Company name represented by the QWSP
- Times and Dates(s) of assessment
- Overview map and description of natural and anthropogenic landscape features within the local watershed. The scale of the map depends on the size of the project and the anticipated extent and magnitude of impacts. The map should have a clear legend, scale, bearings, and labels. This must include, but is not limited to, maps and overviews of the following information:
  - Surrounding land uses
  - General description of geology and soils
  - Named waterbodies (e.g. watercourses, wetlands and lakes)
  - Wetland boundaries and size
  - Catchment size
  - Drainage patterns and connectivity between water bodies
  - Contour maps depicting landscape position of wetlands
  - Upland surroundings and land uses
- Relevant, clear and appropriate photographs of the following:
  - Wetland classes
  - Unique vegetation communities
  - Surrounding upland habitat or land uses
  - Inlets and outlets
  - Disturbances
  - Evidence of wildlife

Photographs must have associated GPS coordinates and figure descriptions of vantage point. E.g., Photo taken of Wetland A (Class xx), taken from wetland edge at coordinates xx (lat, long), facing south. Culvert to the left drains into Wetland B.

## 5.2. Wetland Identification and Delineation Reporting Requirements

- Digital Shapefile of wetland boundaries, determined in accordance with the *Alberta Wetland Identification and Delineation Directive*.
- Digital Shapefile of project boundary and proposed areas of wetland loss.

- Documentation of procedures and evidence used to interpret wetland boundaries, in accordance with the *Alberta Wetland Identification and Delineation Directive*, including the delineation pathway chosen (see Directive).
- Documentation of imagery selection criteria and sources used to delineate wetland boundaries, including the following information below and depicted in Table 1:
  - Legal Land Description and GPS coordinates (lat-long or UTM)
  - Image source
  - Resolution
  - Scale
  - Date taken (day, month and year)
  - Precipitation or other climate analysis data
  - Permanence assessment

**Table 1. Documentation of imagery sources used to identify and delineate wetland boundaries**

| Legal Description (Sec. Twp. Rge. Meridian):  |     |     |     |    |   |                       |                            |                     |            |         |                    |                                       |                                |                                  |  |                          |                            |
|---|-----|-----|-----|----|---|-----------------------|----------------------------|---------------------|------------|---------|--------------------|---------------------------------------|--------------------------------|----------------------------------|--|--------------------------|----------------------------|
| Wetland ID  | Qtr | Sec | Twp | Rg | M | Photo Date (MM/DD/YY) | Photo ID (Roll AS# Photo#) | Image Source        | Resolution | Season* | AWCS Wetland Class | Precipitation Year**                  | Precipitation Month Analysis** | Precipitation Day Analysis       | Open Water Visible or Consistent Wetland Vegetation Signature*** | Assessment of Permanence | Photo Notes                |
| 001   |     |     |     |    |   | 5/16/1974             | 1455-022                   | Aerial BW hard copy | 1:12000    | S       |                    | Normal                                | preceded by very wet month     | None (but 20mm in 2 weeks prior) | W  | N                        | Water levels above average |
|   |     |     |     |    |   | 8/13/1966             | 944-162                    | Aerial BW hard copy | 1:30000    | Sum     |                    | Normal                                | Wet                            | None (but 10mm in 2 weeks prior) | DV   | N                        |                            |
|   |     |     |     |    |   | 9/29/1949             | 0146-016                   | Aerial BW hard copy | 1:36800    | Fall    |                    | Not available                         | Not available                  | Not available                    | DV   | N                        |                            |
| 002   |     |     |     |    |   | 8/13/1966             | 944-162                    | Aerial BW hard copy | 1:40000    | Sum     |                    | Normal                                | Wet                            | None (but 10mm in 2 weeks prior) | DVI  | N                        |                            |
|   |     |     |     |    |   |                       |                            |                     |            |         |                    | Years Dry Over Photo Record (# Years) | #                              |                                  |  |                          |                            |
| *S=Spring (April to June); Sum=Mid-Late Summer (June to Sept); F=Fall (Sept-Nov); Seasonality bas   |     |     |     |    |   |                       |                            |                     |            |         |                    |                                       |                                |                                  |  |                          |                            |
| **D=Dryer; N=Normal; W=Wetter N/A=Not available   |     |     |     |    |   |                       |                            |                     |            |         |                    |                                       |                                |                                  |  |                          |                            |
| ***W=Water present/inundated; D=Dry; DV=Dry, vegetated (consistent with wetland class); DVI=Dry, vegetated (indistinguishable from surrounding uplands) |     |     |     |    |   |                       |                            |                     |            |         |                    |                                       |                                |                                  |  |                          |                            |
| ****Y=Yes (Reasonably Permanent, a Sec 3 <i>Public Lands Act</i> body of water); N=No (Not Permanent, a wetland regulated under <i>Water Act</i> )      |     |     |     |    |   |                       |                            |                     |            |         |                    |                                       |                                |                                  |  |                          |                            |

- Documentation and evidence of wetland field indicators used to verify or delineate the wetland boundary, as shown in Table 2:

Note that blank forms are found in Appendix 7 of the Alberta Wetland Identification and Delineation Directive.

**Table 2. Example of field information and indicators used to identify and delineate wetlands**

| Wetland class codes | Stratum (ground, shrub, tree) | Plot technique (1 x 1, 10 x 10, none) | Plot location (UTM) | Common name of species | Latin name of species             | Facultative Wetland or Obligate Wetland spp. (Y/N) | Percent Relative Cover of abundant species (round to nearest 5) |
|---------------------|-------------------------------|---------------------------------------|---------------------|------------------------|-----------------------------------|--|---|
| W-III-sb            | Ground                        | 1 x 1                                 | Xxxxxxx             | Bluejoint              | <i>Calamagrostis Canadensis</i>   | Y  | 20  |
|                     |                               |                                       |                     | Fowl bluegrass         | <i>Poa palustris</i>              | Y  | 20  |
|                     |                               |                                       |                     | Wild mint              | <i>Mentha arvensis</i>            | Y  | 20  |
|                     |                               |                                       |                     | Timothy                | <i>Phleum pratense</i>            | N  | 40  |
|                     |                               |                                       |                     | <b>Wet/non-wet</b>     |                                   | <b>50:50</b>                                       |   |
| W-III-sb            | Ground                        | 1 x 1                                 | Xxxxxxy             | Bluejoint              | <i>Calamagrostis Canadensis</i>   | Y  | 35  |
|                     |                               |                                       |                     | Timothy                | <i>Phleum pratense</i>            | N  | 45  |
|                     |                               |                                       |                     | <b>Wet/non-wet</b>     |                                   | <b>45:35</b>                                       |   |
| B-Wc                | Ground                        | 1 x 1                                 | Xxxxxxz             | Bog Labrador tea       | <i>Rhododendron groenlandicum</i> | Y  | 30  |
|                     |                               |                                       |                     | Bunchberry dogwood     | <i>Cornus Canadensis</i>          | N  | 20  |
|                     |                               |                                       |                     | <b>Wet/non-wet</b>     |                                   | <b>30:20</b>                                       |   |

### 5.3. Wetland Classification Reporting Requirements

- Documentation and evidence used to key out wetland classes, forms and/or types, including classification codes and other information depicted in Table 3.

**Table 3. Example of information and evidence used to classify a wetland**

| Wetland | Classification codes  | Soil characteristics           | Hydrologic characteristics   | Vegetation characteristics   | Indicator species/communities   |
|---------|-----------------------|--------------------------------|--|--|---|
| W1      | <i>Class W-III-sb</i> | Von Post = 7                   | Conductivity of 780 µs/cm  | SAV in deepest part of basin; Species were characteristic of slightly brackish conditions. | <i>Utricularia vulgaris</i> (common bladderwort), <i>Drepanocladus</i> spp.,  |
|         | <i>Class B-Wc</i>     | Peat – no von Post rating done | No surface water present, acidic pH of 4.0, no surface inflows or outflows | Greater than 5% trees, bryophyte ground cover, ericaceous shrubs                           | <i>Rhododendrun groenlandicum</i> (bog Labrador tea), <i>Vaccinium vitis-idaea</i> (lingonberry), <i>Kalmia polifolia</i> (alpine laurel), <i>Picea mariana</i> (black spruce), <i>Sphagnum balticum</i> (baltic sphagnum), <i>Dicranum</i> spp., lichens |

### 5.4. ABWRET-A Reporting Requirements

- Attach ABWRET-A results and final relative wetland values (A, B, C or D).

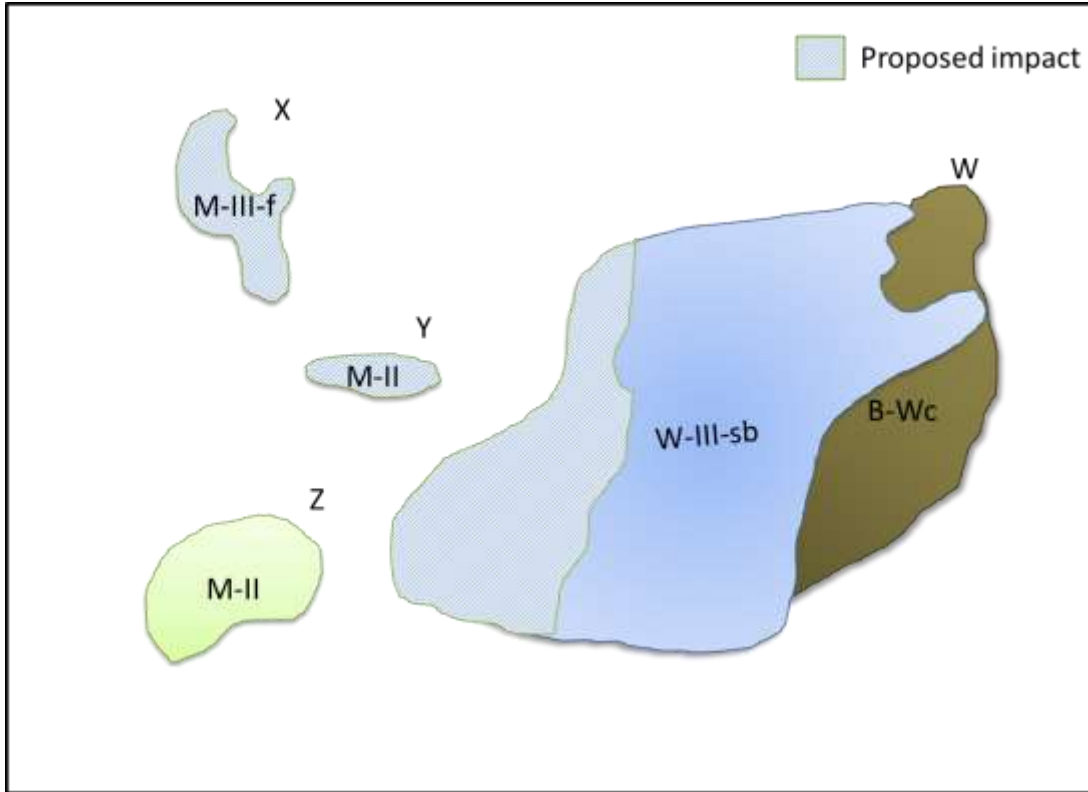
### 5.5. Species Surveys reporting requirements

- A Landscape Analysis Tool (LAT) report, where available, with explanations of how all conditions will be met during construction activities.
- A list of dominant, sensitive and endangered species in the impact area.
- A description of how the timing of activities will minimize any impacts during key fish and wildlife life cycles.

## **5.6. Impacts to Wetlands**

Applicants must sufficiently describe all anticipated impacts to wetlands, including the following information:

- Total footprint of the proposed activity
- Total number and area of wetlands that were assessed
- Number and area of wetlands that will be permanently lost and/or impacted
- The timeframe of the proposed activity
- The type, magnitude, spatial extent, duration and timing of stressors induced by the activity, including but not limited to:
  - Alterations to hydrology or hydrogeology
  - Alterations to wetland chemistry or water quality
  - Sediment loading or erosion, or alterations to soil chemistry or quality
- Any expected changes in wetland class, and the causes for this change
- Any expected adverse effects on the aquatic environment, including biodiversity, ecological health or habitat, and the causes of these effects
- Any expected adverse effects to humans, including First Nations, public health and safety, and human use
- Consideration of cumulative effects in the watershed, to wetlands or to the broader environment



**Figure 2. Example of proposed impacted areas of wetlands that must be included in the WAIR portion of a regulatory application. Wetland codes are examples of wetland classification codes provided in the Alberta Wetland Classification System. M-III-f is a Seasonal, Freshwater Marsh, M-II is a Temporary Marsh, W-III-sb is a Slightly Brackish, Seasonal Shallow Water Wetland, and B-Wc is a Wooded, Coniferous Bog**

### 5.7. Other Surveys

The following information may be required by the regulatory body, depending on the complexity of the project, the extent and scale of proposed impacts or any additional environmental considerations.

- Appropriate and sufficient studies on water quality, conducted by a qualified professional, when a proposed activity is likely to result in altered water chemistry discharging into or out of a wetland.
- Appropriate and sufficient studies on local hydrology or hydrogeology, conducted by a qualified professional, when a proposed activity is likely to result in altered water quantity flowing into or out of a wetland.
- A Stormwater Management Report, including design, operation, and maintenance plan, in accordance with Stormwater Management Guidelines.
- Water level control structures design, operation and maintenance plans.

## **6. Expiry Dates**

Applicants must ensure that wetland assessments are conducted within three years of a wetland application, and represent current conditions of the wetland. Applicants must ensure no construction activities are performed in the area, which may impact the wetland, prior to wetland assessments. For large projects implemented over a number of years, Applicants must plan accordingly by separating the project into phases or segments.

## **7. Retention of Documents**

Wetland assessment information collected for a WAIR Report must be retained for a minimum of 5 years and made available upon request.

## **8. Review and Amendment**

This Directive may be reviewed and amended at any time. It is the responsibility of the Applicant to ensure they refer to the most up-to-date version of this document.

## **Contact Information**

Any comments, questions, or suggestions regarding the content of this document may be directed to:

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Additional copies of this document may be obtained by contacting:  
Alberta Environment and Parks  
Information Centre  
Main Floor, Great West Life Building 9920 108 Street Edmonton Alberta Canada T5K 2M4  
Call Toll Free Alberta: 310-ESRD (3773) Toll Free: 1-877-944-0313 Fax: 780-427-4407

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## **Authorities**

Original signed by: \_\_\_\_\_

Date: Jun1, 2015

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Alberta Environment and Parks