APPENDIX E

LRIA Information

Lakes and Rivers Improvement Act

Administrative Guide

Ontario Ministry of Natural Resources

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The Lakes and Rivers Improvement Act (LRIA) provides the Minister of Natural Resources with the legislative authority to govern the design, construction, operation, maintenance and safety of dams in Ontario. The Lakes and Rivers Improvement Act Administrative Guide and supporting technical bulletins have been prepared to provide direction to Ministry of Natural Resources staff responsible for application review and approval and guidance to applicants who are seeking approval under Section 14, 16 and 17.2 of the LRIA. All technical bulletins in this series must be read in conjunction with the overarching Lakes and Rivers Improvement Act Administrative Guide (2011).

Lakes and Rivers Improvement Act Administrative Guide

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1.0 Introduction

1.1 The Purpose of this Guide

The purpose of this guide is to provide an overview of the Lakes and Rivers Improvement Act (LRIA), its application and the process for seeking Ministry of Natural Resources (MNR) approval to construct, alter, improve or repair water control infrastructure in Ontario.

In addition to this guide, the MNR also produces a companion series of technical bulletins and best management practices designed to provide detailed technical guidance on the design, operation and management of dams.

These documents are not intended to provide a list of mandatory requirements to be rigidly applied in all circumstances but serve to provide guidance to both MNR Regional Operations staff responsible for application review and approval and to applicants who are seeking approval under the LRIA. The guidance provided within these documents is not intended to replace the judgment of the design engineer. The primary responsibility for proper infrastructure design lies with the design engineer for the project.

1.2 The Lakes and Rivers Improvement Act

The LRIA is administered by the MNR. The Act can be downloaded in English or French, and/or obtained in hard copy from any Service Ontario location.

The purposes of the LRIA are to provide for:

a. the management, protection, preservation and use of the waters of the lakes and rivers of Ontario and the land under them;

b. the protection and equitable exercise of public rights in or over the waters of the lakes and rivers of Ontario;

c. the protection of the interests of riparian owners;

d. the management, perpetuation and use of the fish, wildlife, and other natural resources dependent on the lakes and rivers;

e. the protection of the natural amenities of the lakes and rivers and their shores and banks; and

f. the protection of persons and of property by ensuring that dams are suitably located, constructed, operated and maintained and are of an appropriate nature with regard to the purposes of clauses (a) to (e).

Ontario Regulation 454/96 defines the types of structures or works requiring approval under Section 14 and Section 16 to include channelizations, water crossings, enclosures, pipeline installations (except for the installation of heat loops, water intakes and services cables for private residences) and dams. The terms channelize and water crossing are defined in Ontario Regulation 454/96. In addition, a ‘dam’ is more narrowly referred to in Ontario Regulation 454/96 as a structure that holds back water in a river,

lake, pond or stream to raise the water level, create a reservoir to control flooding or divert the flow of water.

1.3 Roles and Responsibilities

1.3.1 The Ministry of Natural Resources

Overall Legislative Responsibility: Lakes and Rivers Improvement Act

MNR is responsible for administering the LRIA and its associated regulations. In carrying out its legislative and regulatory responsibilities, the Ministry is responsible for:

1. Processing in a consistent manner, applications submitted under Section 14 or 16 of the Act;
2. Issuing approvals under Section 14, 16, 17.2 or 23.1 of the Act;
3. Undertaking educational initiatives to explain the purpose of the Act and its associated regulations; and
4. Conducting periodic compliance monitoring (inspections, selective reviews and investigations) and enforcement (including Minister's Orders) to ensure the intent of the LRIA is being met.

Other Legislative Responsibilities

MNR also administers a number of other statutes that may be impacted by or invoked as a result of works proposed for approval under the LRIA. For example, approval under the Public Lands Act is required for works proposed on Crown lands. For works that are proposed within the Niagara Escarpment Planning Area, a development permit may be required from the Niagara Escarpment Commission. In keeping with the provisions of the Niagara Escarpment Planning and Development Act, Section 24 (3) requires that development permits be issued first, before any other permit is issued and further that other permits must be consistent with the permit issued by the Niagara Escarpment Commission.

Statement of Environmental Values

Under Section 11 of the Environmental Bill of Rights, MNR is obliged to take every reasonable step to ensure that its Statement of Environmental Values is considered whenever decisions that might significantly affect the environment are made by the Ministry.

1.3.2 Other Provincial Ministries and Agencies and Other Levels of Government

There are a number of provincial ministries, federal departments and agencies which administer statute laws, regulations, and policy that have a bearing on the management of water resources, including, but not limited to:

1. **Ministry of Agriculture, Food and Rural Affairs** is responsible for preserving prime agricultural land, ensuring sustainable water supplies for agricultural

purposes and administering the Drainage Act. This includes the installation or maintenance of a municipal drain under the Drainage Act.

2. **Ministry of Culture, Tourism and Recreation** has a legislated mandate to protect Ontario's heritage.
3. **Ministry of Energy** is responsible for development of sustainable renewable energy supplies including hydro-electric power.
4. **Ministry of the Environment** is responsible for administering a number of Acts related to managing or protecting water resources including the Environmental Assessment Act, Environmental Protection Act and the Ontario Water Resources Act (OWRA). The OWRA specifies responsibilities and requirements related to the Taking of Water (i.e., Permits to Take Water such as, temporary or partial diversions and low flow), and water quality for discharge from tailings dams.
5. **Ministry of Municipal Affairs and Housing** sets the broad policy, legislative and regulatory framework for the land use planning system in Ontario. The Ministry is responsible for administering the Planning Act, the Provincial Policy Statement, 2005 (PPS, 2005) and provincial plans for specific geographic areas of the province (e.g. the Greenbelt Plan). The decisions of municipalities, and others, when exercising any authority that affects a planning matter, must be consistent with the PPS, 2005 and shall conform or not conflict with provincial plans. This ensures that provincial interests are reflected in local land use planning decisions. It is worth noting that Municipal Official Plans and Zoning By-laws may be affected by proposed works under the LRIA. The Ministry also has responsibility under the Emergency Management and Civil Protection Act Order-in-Council 1157/2009 for the coordination of extraordinary provincial expenditures in an emergency. It administers the province's only disaster relief program, the Ontario Disaster Relief Assistance Program, as well as ad hoc relief programs for non-natural disasters. It also participates in federal/provincial/territorial efforts to establish a national disaster mitigation strategy.
6. **Ministry of Northern Development, Mines and Forestry (MNDMF)** has responsibility to administer the Mining Act. In keeping with a signed MNR and MNDMF Memorandum of Understanding, MNDMF is responsible for addressing mine tailings dams under closure plans prepared under the Mining Act. The Ministry also has responsibility under the Emergency Management and Civil Protection Act Order-in-Council 1157/2009 for any emergency that requires the support of provincial emergency management in northern Ontario.
7. **Ministry of Transportation (MTO)** has a mandate relating to provincial highways (Kings or secondary highways). MTO review applications from the perspective of water levels and flows as they affect roadway crossings, bridges and culverts on provincial highways.

Other Agencies:

Conservation Authorities (CAs) are authorized under Section 28 of the Conservation Authorities Act to regulate certain activities within their areas of jurisdiction. Permission of the local CA is required for straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse, or for changing or interfering in any way with a wetland.

Permission of the local CA is also required for development activities if in the opinion of the CA, the control of flooding, erosion, dynamic beaches, pollution or the conservation of land may be affected.

Other Levels of Government:

1. **Canadian Heritage, Parks Canada** has a legislated mandate to protect representative areas of national natural and cultural significance; Parks Canada approval may be required where works will take place on or will affect non-federally owned national historic sites (NHS).
2. **Environment Canada** has responsibilities related to the Canadian Environmental Assessment Act and the Canada Water Act.
3. **Fisheries and Oceans Canada (DFO)** have specific responsibilities in relation to the management and protection of fish habitat and to ensure that fisheries habitat is not adversely affected. DFO or their delegate will review all applications under the Fisheries Act. DFO's review could also trigger Species At Risk Act and/or Canadian Environmental Assessment Act*.*
4. **Transport Canada** through the Navigable Waters Protection Act is responsible for safeguarding the navigability of all waters including coastal and inland waterways, ensuring the safety of marine navigation and protection of the marine environment.

Others:

There are also a number of other agencies and departments at various levels of government whose mandates require the issuance of approvals and permits. It is the applicant's responsibility to be aware of these requirements and to secure the necessary authorization to proceed.

1.3.3 Owners of Infrastructure Subject to the Lakes and Rivers Improvement Act

Owners of infrastructure are responsible for the safe management of their structures and for ensuring their structures remain in compliance with the LRIA, its associated Regulations, and approvals issued there under. The absence of specific regulatory requirements does not negate the owner's responsibility for the safe management of dams.

1.3.4 The Applicant

Applicants are required to comply with the requirements of the LRIA. Applicants are responsible for ensuring that information requested by MNR is provided in a timely manner (i.e. well in advance of any construction season). Applicants are advised to contact the respective District Office to discuss timing and the process for application review. Applicants are responsible for ensuring that their application is complete and that all supporting documentation has been provided.

The LRIA application, review and approval process needs to operate harmoniously and be integrated with other regulatory agency requirements. Applicants who are seeking approval must be aware of their obligations, as well as the mandate and responsibilities

of the regulatory agencies involved. All efforts should be made to coordinate information requirements so that the process is as efficient and as effective as possible.

It is the applicant's responsibility to consult with and obtain any approvals that may be required from other Government Ministries or Agencies.

Available Sources of Information

Applicants who are seeking approval under the LRIA can obtain additional information on wildlife habitat from the local MNR District Office, municipalities, planning authorities and CAs.

Municipal planning authorities should be consulted to determine the location of significant wetlands and significant wildlife habitat. The local MNR office may be contacted for information related to the use, management and perpetuation of fish (e.g. Fisheries Management Plans), as well as the potential for impacts to threatened or endangered species. A number of documents and guidelines have been generated in association with MNR's wetlands management program and planning policies, such as the Ontario Provincial Policy Statement, 2005. An important source of technical information can be found in the "Temperate Wetlands Restoration Guideline," March 1998. These documents are a source of information and they provide guidance on approaches that may be applied to approvals under the LRIA.

1.3.5 The Applicant's Engineer(s)

The majority of works submitted for approval under the LRIA require supporting calculations and drawings to be completed by a Professional Engineer licensed to practice in Ontario.

In certain situations, the construction phase must also be inspected by the Engineer or the Engineer's representative as frequently as may be required to ensure compliance with the approved plans and specifications. Approval issued by the Ministry should specify this as a condition.

The design and construction and supervision of works associated with dams, water crossings and channelization projects fall under the practice of Professional Engineering as defined in the Professional Engineers Act. Accordingly, all final drawings, specifications, plans and reports are required to be signed, sealed and dated by a Professional Engineer licensed to practice in Ontario.

Works that require a Professional Engineer to design include but are not limited to:

1. dams with a 3.0 meter height or more;
2. dams with a 2.0 meter height or more and a reservoir surface area of 2.0 hectares or more;
3. dams with a watershed area of 5.0 square kilometres or more;
4. dams, water crossings and channelization works, the failure of which could cause loss of life or property damage in excess of $100,000;

5. a dam, water crossing or channelization to be located on a lake or stream, the failure of which could release into a lake or stream any pollutant likely to impair the quality of the water (e.g. sediment release or structural debris);
6. channelizations that may harmfully alter fish habitat or impede the movement of fish in a stream or lake or which will significantly alter the main channel of a stream; and
7. mine tailings dams.

In addition to the works listed above, any works that affect the safety of the public may also need to be designed by a Professional Engineer.

1.4 Protection of Existing Rights

1.4.1 Aboriginal and Treaty Rights – Duty to Consult

Section 35 of the Canadian Charter of Rights and Freedoms has affirmed the treaty and aboriginal rights of Aboriginal peoples. Decisions issued by the Supreme Court of Canada have affirmed the Government's Duty to Consult with Aboriginal peoples where actions undertaken by government may adversely affect an established or an asserted Aboriginal or treaty right. To ensure that the Duty to Consult is adhered to, MNR will work with applicants to coordinate Aboriginal consultation.

To the extent that the traditions of First Nations and Aboriginal communities offer ways of understanding the environment, this is to be respected and considered in the review of applications.

1.4.2 Riparian Interests and Public Rights

A riparian owner is defined as an owner of land that fronts on to a waterbody, where the property boundary is the waters edge. Established in Common Law, riparian owners enjoy a bundle of rights associated with their property. These rights include:

1. right of access to the water;
2. right of drainage;
3. rights relating to the quantity (flow and level) of water;
4. rights relating to the quality of water;
5. rights relating to the use of water; and
6. right of accretion.

Applicants who are applying for approval under the LRIA need to be aware of the rights of riparian owners. Further, they need to take into account the effect that the proposed work will have on the rights of riparian owners.

The cumulative impacts of a number of works can cause serious damage to aquatic environments and waterfront property owner's interests. Therefore, consideration of the cumulative impact of other similar development activities should be assessed and

determined through consultation with other agencies having an interest in the waterfront property (River and Stream Systems – Erosion Hazard Limit, 2001).

It should be noted that not all property owners adjacent to water bodies are riparian owners. For example, a property that has a surveyed boundary fronting on the water has a fixed property line that does not move with the water's movement. If the water rises, the property boundary remains fixed even though the property may be covered with water. If on the other hand, the water level recedes, there will be a strip of dry Crown land between the private land and the water's edge.

Regardless of the legal status of the land ownership, riparian and non-riparian owners of property adjacent to water bodies require consideration when a proposed work will impact their property in the following ways:

1. increased flooding;
2. reduced or increased water levels;
3. impacts on ecological integrity;
4. reduced ability to drain;
5. erosion and slumping of stream beds and banks;
6. reduction or increase in normal sediment supply;
7. loss of flow through:
    a. diversions;
    b. withdrawals;
    c. increased evaporation;
8. fluctuating water levels; and
9. loss of tree cover due to inundation.

Applicants must make every effort to protect the interests of land owners who will be impacted by the proposed works. For instance, where temporary or permanent flooding of land will occur, or riparian rights will be negatively impacted, a formal land tenure document, consent or release from the affected owners must be obtained. Applicants are advised to seek legal advice in this regard.

Formal land tenure documents that are acceptable for registration by a Land Registry Office, may include a flooding easement or sale of land and generally apply where the impacts are expected to be significant. These documents are transferable to new land owners.

In situations where the impact of a proposed work is expected to be minimal, applications may be approved under the LRIA if the applicant obtains the consent of the affected property owner(s). For LRIA purposes, this consent could take the form of a letter signed by the applicant and the landowner(s) that stipulates the following:

1. the landowner has been informed of the nature of the proposal and its impacts;
2. the landowner understands how the current conditions affect their property (specify);

3. the landowner understands that the proposed works will result in a change to current conditions (specify); and
4. the landowner has no objection(s) to the proposed work and hereby provides their consent to the application.

In addition, many Ducks Unlimited Canada (DUC) projects have landowner agreements in place authorizing DUC to flood the land of private land owners in order to create or maintain a wetland.

1.4.3 Public Rights and Interests

There are additional rights afforded to the public in general related to waterbodies and waterways. These include the right of navigation, the right of access, and the right to fish.

Navigation is protected by the Navigable Waters Protection Act. Navigation includes all those rights necessary for the convenient passage of vessels along the waterway, including reasonable anchorage or moorage.

Other rights or interests may be tied to land tenure documents. For instance, most patents include a right to access the shore from the waterbody. The patent may also contain a 66 foot reserve around the shore.

1.4.4 Crown Land Ownership

The ownership or exclusive right to use water is not vested in the Crown in right of Ontario. Water in Ontario is considered a right in common and cannot be privately owned. Approval to work in water is not in and of itself considered to constitute a crown resource disposition. However, because the beds of most navigable waters in Ontario are considered to be Crown land (pursuant to the Beds and Navigable Waters Act), any ongoing occupation of the bed requires authorization under the Public Lands Act. Authorization is required for occupation of or over Crown land or where either permanent or periodic flooding of Crown land is being contemplated.

Applications that involve the use of Crown land must also satisfy MNR's Application Review and Land Disposition Policy and Procedure. If a Crown land disposition is involved, it is subject to the Environmental Assessment Act.

Projects that are subject to the Environmental Assessment Act require the MNR to comply with the requirements specified under the Class Environmental Assessment for Resource Stewardship and Facility Development (RSFD) (or other instrument under the Act such as the Ontario Waterpower Class Environmental Assessment) or evidence received from the applicant that the RSFD requirements have been met.

1.4.5 Disposition of Rights to a Crown Resource

The disposition of rights to a Crown resource occurs when MNR issues a form of permit or license to carry out work on Crown land or MNR issues a tenure document to occupy or flood Crown land in some manner. In these cases, the MNR is required to ensure that

its Environmental Assessment Act requirements under the MNR Class EA *for* RSFD are met before the disposition document is issued.

1.4.6 Where Rights to Crown Land Have Been Previously Granted

In some instances, proposed works will affect Crown land and/or resources where some or all of the rights have already been granted. Dispositions can take the effect of a flooding easement, license of occupation, lease, land use permit or mining lease.

Where rights to Crown land have been previously granted, MNR must advise the applicant that this is the case. Applicants who wish to pursue their application are required to contact the rights holder prior to location approval being granted. Consent or authorization must be obtained from the rights holder regarding the proposed work before approval can be granted.

1.4.7 Private Land Ownership

For applications that involve LRIA approval on private land (i.e. both the banks and the bed of the waterbody are private land), there is no disposition of Crown resources and therefore, the Class EA for RSFD does not apply.

1.5 Other Key Documents

This Administrative Guide and associated technical bulletins makes reference to a number of other Guidelines, Directives and Standards. While this Guide explains the application, submission, review and approval process under Section 14 and Section 16 of the Act, these references are provided for information purposes, and may be useful to applicants.

A number of documents and guidelines have been developed in association with the MNR water resource management responsibilities. Some of these documents have been developed by MNR directly and by MNR in conjunction with its partners. Other documents have been developed by industry associations and organizations. These documents provide additional guidance and information on acceptable design, construction and operating requirements for dams and will be used where appropriate in the review of works for approval under the LRIA. Some of these additional reference documents include the following:

1. Adaptive Management of Stream Corridors in Ontario (MNR, 2001)
2. Natural Hazards Technical Guideline (MNR, 2001)
3. Flood Damage Estimation Guide - Draft (MNR, 2007)
4. Temperate Wetlands Restoration Guideline (MNR, 1998)
5. Ontario Provincial Policy Statement (MMAH, 2005)
6. Ontario Drainage Management Manual (MTO, 1997)

7. Ontario MNR Technical Guidelines – Flood Plain Management in Ontario (MNR, 1982)
8. Fish Habitat Referral Protocol for Ontario (DFO/MNR/CO, 2009)
9. Ontario Significant Wildlife Habitat: Technical Guide (MNR, 2000)
10. Recovery Strategies prepared under the Endangered Species Act, 2007

Over time, MNR may develop additional guidance that can help to inform design, construction and operating requirements for dams to be used as appropriate in the review of works requiring approval under the LRIA.

Procedural directives have been prepared specifically for MNR District and Regional staff which provides additional information relating to the processing of applications under the LRIA.

1.6 Application of the Lakes and Rivers Improvement Act to the Crown

The LRIA does not bind the Crown. Dams and other works subject to the LRIA, but constructed by Provincial and/or Federal Ministries, Agencies and Departments, may not require LRIA approval. As a matter of policy however, MNR has elected to apply the criteria and standards contained in this Guide and its associated technical bulletins and administrative directives for location approval and for plans and specifications approvals to dams and other in-water works to be constructed and maintained by the MNR.

Applying the provisions of the LRIA and its associated regulations to federally regulated corporations (e.g. TransCanada Pipelines) and to federal lands (including Reserve lands) can be complex. Each situation needs to be assessed individually. For this reason, consultation with MNR Legal Services Branch is necessary to determine whether or not the LRIA applies in these situations.

2.0 Where The Lakes and Rivers Improvement Act Applies and Does Not Apply

2.1 Types of Works Requiring Approval under Sections 14 or 16 of the Lakes and Rivers Improvement Act

Under the LRIA, approval must be obtained from the MNR for:

1. Dams;
2. Water Crossings – Bridges, Culverts and Causeways;
3. River Channels – Channelization of rivers, including dredging, diverting or enclosing a channel except for the installation or maintenance of a drain subject to the Drainage Act;
4. Enclosures;
5. Buried Pipelines and Cables – installing cables and pipelines where they will hold back, forward or divert water; or,

6. Municipal and Other Drains.

2.1.1 Dams

Under Ontario Regulation 454/96, approval must be obtained from the MNR to construct, decommission, alter, improve or repair a dam that holds back water in a river, lake, pond or stream to:

1. raise the water level,
2. create a reservoir to control flooding; or
3. divert the flow of water.

The construction of a new dam under Section 14, or an alteration, repair or improvement to a dam, or the decommissioning or change to the operations of a dam under Section 16 may require approval under the LRIA where the dam is located on or is proposed to be located on the bed of a river or lake, or is to be or is connected to a river or lake. Table 1 lists the types of works to dams requiring LRIA approval and Table 2 lists the types of works that do not require approval.

The purposes of the LRIA, as contained in Section 2 of the Act and outlined above, will be a relevant factor in determining whether proposed works require approval under Section 16 of the Act. Works subject to approval include those works that may affect the dam's safety or structural integrity, the waters, or natural resources. Further information on Section 16 approvals can be obtained from Directive WR.4.03.05.05: Administration of Section 16 – Lakes and Rivers Improvement Act.

If dam owners and/or applicants have any doubt about whether approval under the LRIA is required, they should complete and submit a Work Permit application form to the local District Office. The District Office will review the proposed work and in consultation with the Ministry Engineer, provide a written response indicating whether or not the work is subject to approval under the LRIA.

Table 1 – Dams: Types of Works *Requiring* LRIA Approval

Type of Dam	Types of Works	Special Considerations	Applicable Types of Watercourses
Permanent Dams	1. Construction of a Dam 2. Alteration, Improvement or Repair to a dam which may affect the dam's safety or structural	Includes locks or weirs	In Permanent Flowing Watercourses 1. all heights of dams
Seasonal Dams		Where a dam is maintained during a portion of the year only (usually the summer season)	In Intermittent Flowing Watercourses where: 1. the dam is 3 meters or more above the

Type of Dam	Types of Works	Special Considerations	Applicable Types of Watercourses
Mine Tailings Dams	integrity, the waters or natural resources 3. Change in a dam operation plan from that contemplated in approved plans and specifications 4. Decommission of a dam	Approval may include one or more phases of construction of a mine tailings dam over a number of years	original stream bed; or 2. the dam is 2 meters or more above the original stream bed with 2 hectares of reservoir surface area; or 3. the watershed area above the proposed site is 1.5 sq. kilometres or more; or 4. fisheries or other natural resources dependent on the river will be adversely affected; or 5. failure of the dam could release into the lake or river any pollutant (likely to impair the quality of the water)
Temporary Dams	Construction of, or removal of the dam	Including coffer dams	
Emergency Dams	Construction of a dam immediately necessary to prevent injury to persons, loss of life, or loss of property.	Immediately give notice to the MNR District Office of emergency works and comply with any directions.	

Table 2 – Dams: Types of Works *Not* Requiring LRIA Approval

Type of Dam	Types of Works	Special Considerations
All Types of Dams	Dam Construction - not located on or connected to a lake or river.	No approval required where a dam is creating an off-stream dug-out or run-off pond supplied by exposure to the groundwater table, or fed by intermittent surface run-off, with no connection to a stream by a pipe or channel.
	Works that may not affect the dam's structural integrity or safety or may not affect the waters or natural resources	See Directive WR.4.03.05.05 for interpretation.
Conservation Authority Dams	Works that have been approved under Section 24 of the Conservation Authorities Act	MNR Section 24 approval under the Conservation Authorities Act must be based on the review of detailed engineering design documents.
Community Fisheries and Wildlife Involvement Program (CFWIP)	Dams	Works carried out under the Community Fisheries and Wildlife Involvement Program (CFWIP) are considered to be Crown projects and are therefore not required to obtain LRIA approval. It is MNR policy however, that MNR field offices will ensure the design for these projects adhere to LRIA policies and standards through consultation with the Ministry Engineer prior to construction.

2.1.2 Water Crossings, Bridges, Culverts and Causeways

A water crossing is defined as a bridge, culvert, or causeway that is constructed to provide access between two places separated by water. For the Act to apply, a water crossing must either hold back, forward or divert water.

A bridge, culvert or causeway may be classed as a dam if it forwards, holds back or diverts water by:

1. altering flows and/or water levels in a lake or river, either intentionally or unintentionally;
2. forwarding water causing increased velocity resulting in increased erosion and sediment downstream;
3. holding back water causing flooding and/or erosion on lands owned by others upstream.

Note: Most bridges, culverts, and causeways with fill approaches, abutments, or piers located in the river channel or its flood plain will cause some temporary hold back of water during flood periods which may cause upstream flooding. The amount of flooding depends on the degree of restriction to flow created by the structure.

Ontario Regulation 454/96 requires LRIA approval for water crossings that drain an area greater than five square kilometres unless construction is being undertaken by a Provincial Ministry or municipality, or contractors employed by a Provincial Ministry or municipality on lands owned by the Crown or the municipality undertaking the construction.

Types of water crossing works requiring LRIA approval are listed in Table 3 and types of works that do not require LRIA approval are located in Table 4.

Table 3 – Water Crossings: Types of Works *Requiring* LRIA Approval

Types of Works	Special Considerations	Applicable Types of Watercourses
Construction of a Bridge, Culvert or Causeway	Where the drainage area above the proposed site is greater then 5.0 sq. km and the water crossing is not built by the ministry or municipality on lands owned by them, approval is required for all water crossings, including clear span bridges.	In permanent and intermittent flowing watercourses where: 1. the watershed area above the proposed site is greater than 5.0 sq. kilometres; or 2. it may harmfully alter fish habitat or impede the movement of fish; or 3. other natural resources dependent on the lake or river will be adversely affected, or 4. the failure of the works could release into the lake or river any pollutant likely to impair the quality of the water.

Table 4 – Water Crossings: Types of Works *Not* Requiring LRIA Approval

Types of Works	Special Considerations
Construction of Bridges, Culverts, Causeways	No LRIA approval required where: 1. The Public Lands Act applies. This includes a private water crossing, spanning from one piece of private land to another over Crown-owned river bed. This may include an MOU to address occupation of or over Crown land. If the span is greater than 3 metres, this will require the crossing structure to be designed by a Professional Engineer.

Types of Works	Special Considerations
	2. Construction is part of a forest operation to which the Forest Operation and Silviculture Manual under the Crown Forest Sustainability Act applies. 3. The water crossing is draining an area greater than 5 sq km and where construction is being undertaken by a Ministry or municipality, or a contractor employed by a Ministry or municipality, on lands owned by the Crown or the municipality. 4. Clear span bridges that meet the required design flow capacity, as determined by MNR. 5. Works done under the Public Transportation and Highway Improvement Act

2.1.3 Channelization in River Channels

Channelization means an alteration to the alignment, width, depth, sinuosity, conveyance, or bed or bank material of a river or stream channel which includes one or more of the following - straightening, widening, or deepening of the river channel.

Note: The river or stream channel is defined as that portion of the channel which conveys the mean annual flood and/or which lies between the high water mark on both banks but does not include the overbank flood plain.

LRIA approval is required for a number of different types of works commonly referred to under the general heading of channelization:

1. Diversions:
   a) River Diversions
   b) Watershed Diversions;
2. Dredging in a river including an inlet into and an outlet from a lake;
3. Revetments, Embankments and Retaining Walls in rivers; and
4. Interconnecting Channels of the Great Lakes.

Diversion works may consist of channels, pipes, and conduits to convey part or all of the stream flow. Diversion works can include a diversion dam to regulate or block the flow of water in the river and/or a control dam on the diversion channel. In these instances, it is appropriate for the diversion or control dam to be dealt with separately as a dam.

Types of channelization works that require approval under the LRIA are outlined in Table 5. Works that do not require approval under the LRIA are outlined in Table 6.

Table 5 – Channelization: Types of Works *Requiring* LRIA Approval

Types of Channelization Works	Special Considerations	Applicable Types of Watercourses
Construction of and alteration to: 1. Total River Diversions and Partial River Diversions (permanent and temporary)	Approval is required: 1. where stream flow is returned to the same river from which it was diverted; 2. for both permanent total and temporary total diversions and for permanent partial diversions; 3. for temporary partial diversions only if a control dam on the river is involved.	In all permanent flowing watercourses. In intermittent flowing watercourses where: 1. the watershed area above the proposed site is 1.5 sq. kilometres or more, or 2. it may adversely affect other natural resources dependent on the river or 3. failure of the works could release into the lake or river any pollutant (likely to impair the quality of the water)
Dredging	Approval is required for the dredging of river channels including the inlet to a lake and the outlet from a lake except for maintenance dredging.	
Revetments, Embankments and Retaining Walls	Approval is required where revetments, embankments or retaining walls are to be located within, or will encroach on, a river channel including into and out of a lake.	
Construction of and Alteration to Watershed Diversions	Approval is required where water is being diverted from one watershed to another of any size or between watersheds of two tributary streams within the same watershed.	In all watercourses
Interconnecting Channels of the Great Lakes	Approval is required for all types of channelization works on the interconnecting channels of the Great Lakes except for maintenance dredging.	In all connecting watercourses

Table 6 – Channelization: Types of Works *Not* Requiring LRIA Approval

Types of Channelization Works	Special Considerations
Maintenance Dredging	No approval required for: a) maintenance dredging of river beds or lakes of any size, for periodic or annual removal of accumulated sediment to restore navigational channels or boat slips. Applications for dredging in this category may be subject to the Public Lands Act.
Channelization in the Great Lakes Water Bodies including Lake St. Clair	No approval required where channelization works, including revetments, retaining walls, and embankments are located on the Great Lakes (not including the interconnecting channels). These projects may be subject to the Public Lands Act.
Community Fisheries and Wildlife Improvement Program (CFWIP)	Works carried out under the Community Fisheries and Wildlife Improvement Program (CFWIP) are considered to be Crown projects and are therefore not required to obtain LRIA approval. It is MNR policy however, that MNR field offices will ensure the design for these projects adhere to provincial standards and requirements through consultation with the Ministry Engineer prior to construction.

For interpretation purposes, approval is required for channelization of a river or stream that may harmfully alter fish habitat, or impede the movement of fish in a river, stream or lake.

Where the potential impact of channelization work on fish habitat and/or fish movement is unknown, such impacts must be confirmed with DFO or their delegate in consultation with MNR. Where it is determined that proposed work will adversely affect fish habitat and/or impede the movement of fish and LRIA approval is required, the process for obtaining approval under the LRIA must be followed.

2.1.4 Enclosures

Works are not considered to be enclosures unless they impact the natural functions of the stream or lake by partially blocking one or more of its natural functions.

Table 7 below identifies the type of enclosure work for which LRIA approval is required.

Table 7 – Enclosures: Types of Works *Requiring* LRIA Approval

Types of Works	Special Considerations	Applicable Types of Watercourses
River or Stream Enclosures or Covers	Pipe Enclosures or Covers > 20m Enclosures which cover or enclose: 1. a length of river or stream greater than twenty metres in length; and 2. may harmfully alter fish habitat in the river or lake, or impede the movement of fish;	In Permanent Flowing Watercourses: 1. all watercourses. In Intermittent Flowing Watercourses where: 1. the watershed area above the proposed site is 1.5 sq. kilometres or more, or 2. other natural resources dependent on the river will be adversely affected, or 3. failure of the works could release into the lake or river any pollutant likely to impair the quality of the water

2.1.5 Installation of Pipelines, Cables and Heat Loops

Table 8 identifies where LRIA approval is required for the installation of pipelines, cables or heat loops. Details concerning works that do not require LRIA approval follow in Table 9.

Table 8 – Pipelines, Cables or Heat Loops: Types of Works *Requiring* LRIA Approval

Types of Works	Special Considerations	Applicable Types of Watercourses
Installation of Pipelines, Cables, Heat Loops	Where installation of a cable or pipeline into or on the bed of a river, stream or lake may result in damming, forwarding or diverting water: and 1. may harmfully alter fish habitat in the river or lake, or impede the movement of fish; 2. may cause or increase erosion;	In Permanent Flowing Watercourses: 1. all watercourses. In Intermittent Flowing Watercourses where: 1. the watershed area above the proposed site is 1.5 sq. kilometres or more, or 2. other natural resources dependent on the river will be adversely affected, or 3. failure of the works could release into the lake or river any pollutant likely to impair the quality of the water

Table 9 – Pipelines, Cables or Heat Loops: Types of Works *Not* Requiring LRIA Approval

Type of Works	Special Considerations
Installation of Pipelines, Cables, Heat Loops	No approval required where installation of heat loops, water intakes and services cables are for private residences. No approval required where cable or pipeline is being installed without disturbing the bed or banks of river channel (i.e. directional drilling).

2.1.6 Municipal and Other Drains

Whether LRIA approval is required for municipal drains is based on whether or not the work relates to the installation or maintenance of a drain subject to or created under the Drainage Act.

Note: Municipal drains are created under the authority of the Drainage Act. Private drains are essentially ditches that land owners have constructed on their own properties in order to drain their land. Mutual agreement drains are private drains that have been constructed through agreement between two or more private landowners. Award drains are ditches that were constructed under legislation entitled the Ditches and Watercourses Act which has become part of the Drainage Act

Table 10 identifies where LRIA approval may be required for municipal and other types of drains. Table 11 outlines where LRIA approval is not required.

Table 10 – Municipal Drains: Types of Works *Requiring* LRIA Approval

Types of Works	Special Considerations	Applicable Types of Watercourses
Municipal and Other Drains	Works other than installation or maintenance (see Table 1-12) that are proposed on municipal drains created under the Drainage Act, or proposed on other types of drains, should be referred to the MNR to determine if LRIA approval is required. Note: Where LRIA approval is required, the application should be circulated to the Ministry of Agriculture, Food and Rural Affairs and the Municipality and to adjacent property owners for comment and recommendations.	In Permanent Flowing Watercourses: 1. all watercourses. In Intermittent Flowing Watercourses where: 1. the watershed area above the proposed site is 1.5 sq. kilometres or more, or 2. fish habitat may be harmfully altered, or fish movement impeded, or 3. other natural resources dependent on the river will be adversely affected, or 4. failure of the works could release into the lake or river any pollutant likely to impair the quality of the water

Table 11 – Municipal Drains: Types of Works *Not* Requiring LRIA Approval

Types of Works	Special Considerations
Municipal Drains	Where no dams are included, approval is not required for the installation or maintenance of a municipal drain subject to or created under the Drainage Act.

2.2 Other Types of Works Not Requiring Lakes and Rivers Improvement Act Approval

There are some works that **do not** require approval under the LRIA, but that may require approval under other legislation. The following section addresses these types of works:

1. Temporary Partial Diversions Not Involving a Dam; and
2. Fill in a Flood Plain (Flood Hazard Limit).

2.2.1 Temporary Partial Diversion Not Involving a Dam

Table 12 – Temporary Partial Diversion Not Involving a Dam: Types of Works *Not* Requiring LRIA Approval

Type of Work	Special Considerations
Temporary Partial Diversion Not Involving a Dam	No approval required for: 1. A temporary or seasonal partial diversion where no dam of any type is proposed on the lake or river channel (e.g. partial diversion by pumping from a stream for irrigation use with a pump and piping which is removed from the site after use). Note: This type of diversion may require a Permit to Take Water approval under the Ontario Water Resources Act. MNR staff are advised to refer the applicant to the local Ministry of the Environment office.

2.2.2 Fill in a Flood Plain (Flooding Hazard Limit)

Many CAs have enacted a Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation. Where an application involves the placement of fill in a flood plain, MNR staff and applicants are advised that the proposal should be forwarded to the local CA for review as the placing of fill in a flood plain could cause increased flood levels on the river.

In areas that are outside the jurisdiction of a CA, but within municipal boundaries or on Crown land, consideration must be given to the Natural Hazards Technical Guidelines, Rivers and Streams and the Provincial Policy Statement (2005) (PPS). Applicants are advised to contact the local MNR District Office.

Table 13 – Fill in a Flood Plain: Types of Works *Not* Requiring LRIA Approval

Types of Works	Special Considerations
Fill In A Flood Plain	No approval required if: 1. Fill is to be placed in the flood plain of a lake or river, provided: a. Fill will be located outside of and will not encroach on a river channel as part of a channelization works; and b. Fill will not be part of a water crossing or dam across a lake or river.

3.0 Lakes and Rivers Improvement Act Review and Approval Process

3.1 General

Applicants who are seeking approval under Section 14 or Section 16 of the LRIA are required to complete and submit a Work Permit application form to the MNR District Office. A separate application form must be completed for each type of approval required. Copies of the application form are available at Service Ontario centres.

The process for reviewing and approving applications submitted under the LRIA is different for alterations, improvements or repairs to existing works, and for new works. The legislation provides for two types of approvals to be issued:

1. Location Approval Letter; and
2. Plans and Specifications Approval Letter.

Existing works require only plans and specifications approval. Both location approval and plans and specifications approval are required for new works.

3.2 Factors to Consider in Application Development and Review

Applicants who are submitting applications for approval under the LRIA as well as MNR staff who are approving applications under the Act should be guided by the following:

1. Applicable federal and provincial statutes and regulations;
2. Applicable federal and provincial policy;
3. Maintaining the integrity of the riverine ecosystem (biodiversity and ecosystem sustainability);
4. Utilizing the best available information;
5. Address and manage impacts premised on the following order of importance – avoidance, prevention, mitigation;
6. Adopt the principles of adaptive management;
7. Principles for effective public consultation; and
8. Timely action.

3.3 Approval for New Works – Section 14 (Location Approval and Plans and Specifications Approval)

New works require both location approval and plans and specifications approval under Section 14 of the Act.

Applicants who are seeking approval for new works must complete two separate application forms – one for location approval and one for plans and specifications approval. The completed application forms must be forwarded to the MNR District Office

for review. The MNR District Office is responsible for issuing both approvals. Location approval and plans and specifications approval are issued as two (2) separate letters of approval.

As noted above, applicants who are seeking approval for new works must complete a Work Permit application form and submit it to the MNR District Office for review. The District Office will confirm if approval under the Act is required and if so, will confirm the information that must be submitted.

3.4 Approval for Existing Works – Section 16 (Plans and Specifications Approval)

An application for alterations, repairs or improvements to an existing dam, water crossing or channelization require only plans and specifications approval under Section 16 of the LRIA. Approval under Section 16 is also required before a person operates a dam in a manner different from that contemplated by plans and specifications approved by the Minister under Section 14 or Section 16 of the Act.

Applicants should be aware that in some instances where applications for alterations, repairs and/or improvements to existing works are submitted for approval under Section 16 of the Act, the applicant may be requested to provide documentation that would support specific requirements generally considered during the location review for approval for new works. These instances may include the following:

1. Location approval was not granted at the time of the original construction; or
2. If site conditions have changed or are proposed to be changed.

In reviewing the application for Section 16 approval, the Ministry will advise the applicant if additional information is required as early in the application review process as reasonably possible.

As outlined in Section 3.5, it is the responsibility of the dam owner/applicant to submit a complete application with supporting documentation for approval. Upon receipt of a complete application, approximately 60 days will be required by the Ministry to conduct a detailed review, for most proposed improvement works. Should the application be incomplete, the Ministry will identify any further information required within 30 to 60 days.

Dam owners/applicants should be cautioned when deviations from the LRIA approval are being considered during construction. MNR should be notified without delay to assess the need for approval of any proposed changes.

3.5 The Application and Approvals Process

It is the responsibility of the applicant to submit a completed application form with the required supporting documentation. The MNR may waive approval for simple projects as there is an established process in place for minor alterations and repairs to existing structures (see Directive WR.4.03.05.05). Certain projects (generally larger scale projects) may require an environmental assessment. Where an environmental

assessment is required, applicants must comply with the requirements of the Environmental Assessment Act.

Supporting Documentation:

Supporting documentation should be submitted to the MNR District Office for review with the following key considerations in mind:

1. Applications for approval must contain complete key plans, topographical maps and general arrangement drawings provided both in plan view and in cross-section view, with dimensional data appropriately labelled (e.g. length, width, horizontal and vertical dimensions, etc.);
2. Any site constraints (i.e. legal, physical, socio-economic and environmental) need to be noted and the appropriate connection to the proposed work noted; and
3. Any and all constraints associated with all phases of the work up to and including construction and commissioning of the works should be identified.

All analyses and investigations (including input parameters and assumptions) should be presented in report format with associated computer model inputs and outputs included as appendices.

The Application, Review and Approval Process:

The application, review and approval process under the LRIA involves the following steps:

Step 1: Application

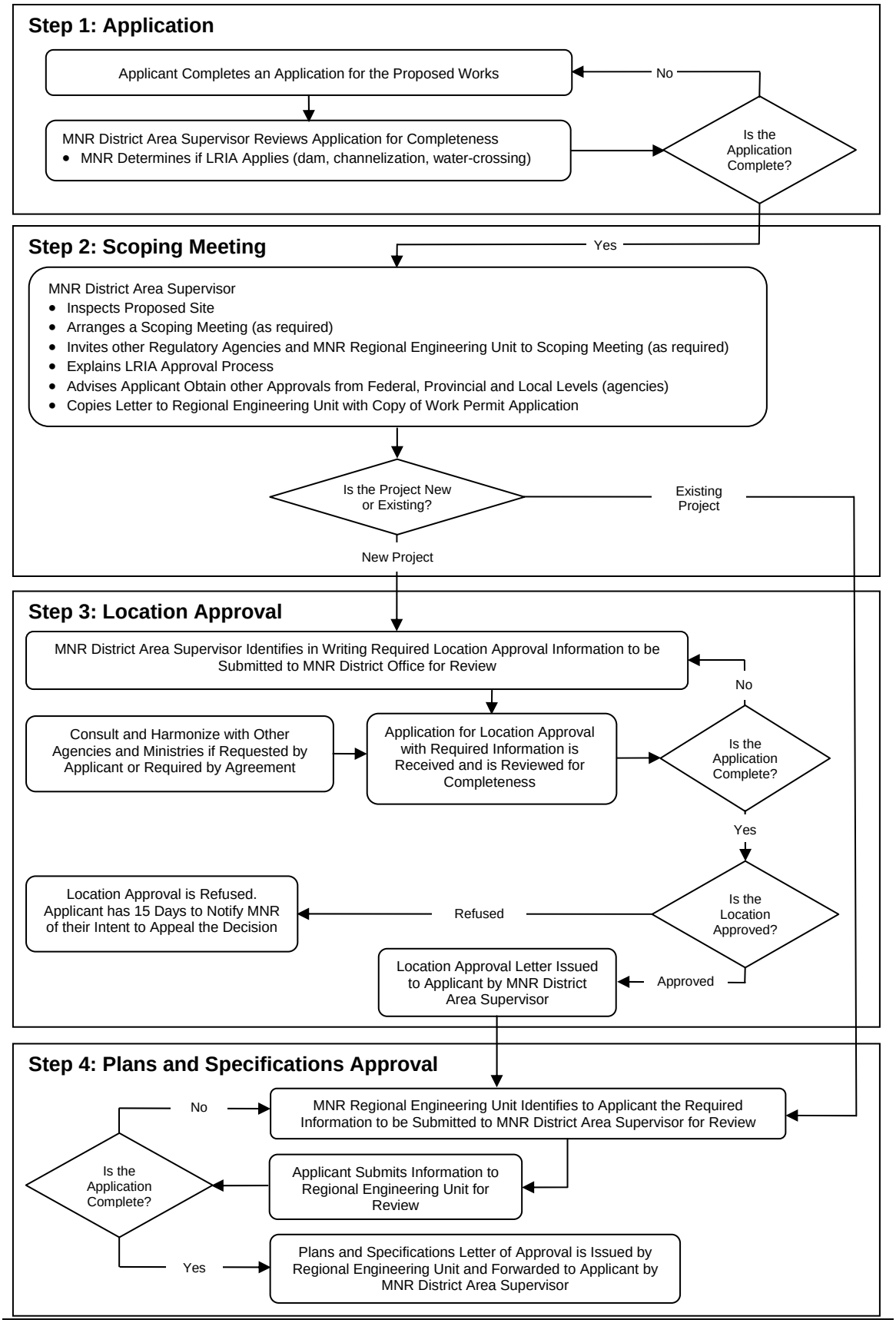
Step 2: Scoping Meeting

Step 3: Location approval (new works only)

Step 4: Plans and specifications Approval

The process for application review and approval is depicted in Figure 1.

Figure 1 – Application Review and Approval Process



3.5.1 Step 1: Application

The application review process under the LRIA commences when an application is submitted for approval under Section 14 or Section 16 of the Act. Applicants seeking approval under the LRIA for both new and existing works are required to complete an appropriate Work Permit application form and submit the application form to the appropriate MNR District Office. Determination on the applicability of the LRIA should be made in conjunction with Regional Engineering.

Applicants are required to ***complete, sign and date each application form in triplicate.*** One copy should be retained by the applicant. Two copies are then submitted to the MNR District Office where one copy is retained in the District Office and one is forwarded to the Regional Engineering Unit.

Note: The application process for new works involves a two-stage application process. The first step involves submitting an application form for location approval. Once MNR has completed its review and has issued location approval, then the applicant will be advised to submit an application for plans and specifications approval.

Documentation Requirements:

Applicants are required to submit the application form with the requisite documentation to support the request for location approval and/or plans and specifications approval. The complexity of the proposal and its potential impacts will largely dictate the need for calculations and assessments. These requirements are discussed in detail below.

3.5.2 Step 2: Scoping Meeting

Where required, within 30 to 60 days of receipt of the initial application form, Ministry staff will arrange a scoping meeting with the applicant to discuss the application review and approval process as well as any requirements for additional information beyond that contained in the application form, and for potential opportunities for harmonization of approvals.

The scoping meeting will be organized by the MNR District Office and invitations to attend will be distributed to the applicant, other Ministries and agencies who have related approval requirements (e.g. MTO, MNDMF, DFO, and Transport Canada). The purpose of the scoping meeting will be to review the documentation requirements, ensure the application is complete and discuss any related approvals that are required. The inability of another ministry or agency to participate should not unduly delay the scoping meeting where their requirements can be provided in advance of the meeting. The applicant should recognize the potential requirement for subsequent participation and confirmation of additional information.

The scoping meeting will promote a coordinated approach to application review. It will allow information requirements to be discussed and integrated so that the application can be processed efficiently and effectively. The scoping meeting offers approval agencies an opportunity to learn more about the project and project timeframe and at the same time offers applicants an opportunity to better understand the approval process and timing associated with review and approval.

The applicant should come to the scoping meeting with copies of the application and any supplementary information describing the works proposed. Copies should be available for all participants. In determining who should participate, MNR must recognize that there are formal signed agreements or MOUs with Fisheries and Oceans Canada (or their delegate) and with Transport Canada.

Upon completion of the scoping meeting, the MNR will identify in writing the required information to be submitted by the applicant to the MNR District Office. The submission will then be reviewed under the location approval application review process.

3.5.3 Step 3: Review for Location Approval

In carrying out the review for location approval for new works, Ministry staff must review the application in accordance with the information requirements specified. Ministry staff in carrying out their review for location approval should also consider the feasibility or practicality of implementing the location approval requirements in the subsequent plans and specifications approval. It is unacceptable to provide location approval for something that is unable to be achieved in the plans and specifications.

The Area Supervisor in the MNR District Office is responsible for the review of applications submitted for location approval. Consultation with the Regional Engineering Unit and the Ministry Engineer will occur on an as-required basis.

If the submission is considered to be complete and meets the requirements for submission, the Area Supervisor will issue a location approval letter informing the applicant they must now submit an application for plans and specifications approval. ***The letter will indicate that the location approval does not authorize construction. The applicant will be advised that construction cannot begin until the plans and specifications approval has been granted by the MNR.***

The location approval issued by the Area Supervisor will contain appropriate requirements and conditions, including a sunset or expiry provision per subsection 14(8) of the LRIA. The conditions that are part of the location approval will need to be addressed and incorporated into the plans and specifications approval.

Should the application be refused at any time during the application for location approval, the applicant then has fifteen (15) days within which to appeal the decision to the Ontario Mining and Lands Commissioner. At this time the applicant must notify their intent to appeal.

3.5.4 Step 4: Plans and Specifications Approval

Upon receipt of an application for plans and specifications approval the Area Supervisor will forward a copy to the Ministry Engineer for their review and approval. The Ministry Engineer should consult with the Area Supervisor during the review, prior to providing the approval.

Decisions on applications for plans and specifications approval are rendered by the Ministry Engineer. If the submission is considered to be complete and meets the requirements for approval, the Ministry Engineer will issue plans and specifications

approval in the form of a letter of approval indicating that the application is approved in keeping with the Act.

The MNR District Area Supervisor will forward the letter of approval to the applicant. The District Office issues the location approval and the Ministry Engineer issues the plans and specifications approval. Both of the letter(s) of approval will be forwarded directly to the applicant by the MNR District Area Supervisor.

3.6 Appeal Process

If a Notice of Refusal has been provided to the applicant, there is an opportunity to appeal the decision to the Mining and Lands Commissioner.

3.6.1 Inquiry

Request of Inquiry

If an application for approval under LRIA is refused, the applicant may request that an inquiry be held.

Person Appointed To Carry Out the Inquiry

If an inquiry is requested by the applicant, the Minister will refer the matter to the Ontario Mining and Lands Commissioner for hearing. The Minister may specify the particulars of the inquiry (e.g. mandate, scope). The Office of the Mining and Lands Commissioner is an independent adjudicative body with expertise in hearing matters relating to natural resource and environmental concerns. The Mining and Lands Commissioner reports to Cabinet through the MNR, but operates at arms length from the Ministry.

Procedures for the Inquiry

All logistical details concerning the inquiry will be handled by the Office of the Mining and Lands Commissioner, including identifying the time, place, location and procedural directions for the inquiry. At least 20 days prior to the inquiry, each party will participate by fully disclosing to other parties, a statement indicating the grounds and documents on which it intends to rely. Any relevant material or documents will be made available for inspection by the parties. The Office of the Mining and Lands Commissioner may require additional circulation of documentation between the parties and may conduct mediation where appropriate. Notice of the inquiry is issued by the Office of the Mining and Lands Commissioner.

Inquiry

In conducting the inquiry hearing, the Mining and Lands Commissioner, or appointed delegate, will consider whether the refusal was fair, sound and reasonably necessary to achieve the purposes of the LRIA.

Report of Inquiry

Once the hearing concludes, the Office of the Mining and Lands Commissioner issues a report to the Minister. The Report summarizes the evidence presented at the inquiry and makes a recommendation to approve or refuse the application. Copies of the final Report are provided to all parties attending the hearing.

3.6.2 Minister's Decision

Upon receipt of the Mining and Lands Commissioner's Report, the Minister considers the Report and issues a decision with reasons. The Minister may grant the approval requested, a modified version of it, or refuse to grant the approval. Notice of the Minister's decision is provided to all parties.

Glossary of Terms

Abutment: The end of a dam, or other structure, consisting of a wall or natural formation. An abutment wall is similar to a wing wall.

Adaptive Management: Long term decision making process for improving resource management through effectiveness monitoring, study to reduce areas of uncertainty and adjusting to limit failures.

Causeway: A road or railway elevated by a bank over a body of water.

Channelization: Altering the alignment, width, depth, sinuosity, conveyance, or bed or bank material of a river or stream channel. Channelization does not include penstocks, raceways, canals and other works normally associated with hydroelectric development.

Clear Span Bridges: Clear Span Bridges do not have piers or abutments located in any portion of the full bank flow natural channel section or stream banks channel section. The stream banks channel section is defined as the full bank flow boundaries, not the flood boundaries, of a stream channel. The channel section does not include the flood plain located in the over bank areas.

Culvert: A conduit for carrying water through an embankment as related to a type of water crossing or discharge facility at a dam.

Dam: For the purpose of the administration of the LRIA, a dam is defined as a structure that is constructed which holds back water in a river, lake, pond, or stream to raise the water level, create a reservoir to control flooding or divert the flow of water.

Dam Owner: The owner of a dam, structure or work and includes the person constructing, maintaining, or operating the dam, structure or work.

Decommissioning: To retire, abandon, dismantle, or remove from active service, working order, or operation.

Dredging: Removal or displacement of any material from the bottom of a lake or stream.

Environmental Assessment: Process to predict the environmental effects of proposed initiatives before they are carried out. It identifies possible environmental effects, proposes measures to mitigate adverse effects, and predicts whether there will be significant adverse environmental effects, even after the mitigation is implemented.

Fish Habitat: Spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes.

Fish: Includes parts of fish, shellfish, crustaceans, marine animals, and any parts of shellfish, crustaceans or marine animals and the eggs, sperm, spawn, spat, larvae, and juvenile life stages of fish, shellfish, crustaceans, and marine mammals.

Groundwater: Sub-surface water or water stored in the pores, cracks, and crevices in the ground below the water table.

Heat Loop: A loop of pipe extending from a building into a body of water for the purpose of transferring heat from the water to the building.

Height: The height of a dam is the vertical distance between the downstream toe of the dam in the streambed and the upper most point of the top of the dam.

High Water Mark: A visible demarcation mark made by the action of water under natural conditions on the shore or bank of a body of water which action has been so common

and usual and so long continued or that it has created a difference between the character of the vegetation or soil on one side of the mark and the character of the vegetation or soil on the other side of the mark.

Lake: Includes a pond and similar body of water (e.g. swamp, marsh, bog) if located on a river.

Lock: A chamber separating two reaches of a river or canal at different elevations. Locks are intended for the passage of boats.

Retaining Wall: A wall built to hold back earth along a river.

Revetments: A wall or facing of stone, or concrete, or other materials placed on a stream bank to prevent erosion.

Riparian: Adjacent to a river or lake.

Riparian Owner: A landowner whose property has boundaries defined on one or more sides by a waterbody or a waterbody runs through the property. In any case, the boundary between the waterbody and the property must be the water's edge where it is from day to day.

River: Includes a creek, stream, brook or similar watercourse with defined bed and banks of a permanent nature.

River Channel: The river or stream channel is defined as that portion of the channel which conveys the mean annual flood and/or which lies between the high water mark on both banks but does not include the overbank flood plain.

Sinuosity: The meandering pattern of a stream or river (wavy form).

Total Diversion: Refers to those situations where all stream flow is diverted from one point to another in the same river; the river channel is relocated, usually involving the construction of a new channel (or pipe); a section of the natural channel is blocked off from further flow by either temporary or permanent works (e.g. channel relocation).

Watercourse: Means a river.

Water Crossing: A bridge, culvert or causeway that is constructed to provide access between two places separated by water but that also holds back, forwards, or diverts water.

Weir: Means a structure in a watercourse intended to raise the water level to partially or totally divert its flow.

Wetlands: Lands that are seasonally or permanently flooded by shallow water as well as lands where the water table is close to the surface; in either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic or water tolerant plans.

List of Acronyms

CA	Conservation Authority
DFO	Department of Fisheries and Oceans Canada (federal)
DUC	Ducks Unlimited Canada
EA	Environmental Assessment
LRIA	Lakes and Rivers Improvement Act
MNDMF	Ministry of Northern Development Mines and Forestry (provincial)
MNR	Ministry of Natural Resources (provincial)
MTO	Ministry of Transportation (provincial)
NHS	National Historic Sites
PPS	Provincial Policy Statement

Technical Bulletin

ALTERATIONS, IMPROVEMENTS AND REPAIRS TO EXISTING DAMS

Ministry of Natural Resources and Forestry
2016

Ontario

The Lakes and Rivers Improvement Act (LRIA) provides the Minister of Natural Resources and Forestry with the legislative authority to govern the design, construction, operation, maintenance and safety of dams in Ontario. The Lakes and Rivers Improvement Act Administrative Guide and supporting technical bulletins have been prepared to provide direction to Ministry of Natural Resources and Forestry staff responsible for application review and approval and guidance to applicants who are seeking approval under Section 14, 16 and 17.2 of the LRIA. All technical bulletins in this series must be read in conjunction with the overarching Lakes and Rivers Improvement Act Administrative Guide (2011).

Cette publication hautement spécialisée Lakes and Rivers Improvement Act Alterations, Improvements and Repairs to Existing Dams Technical Bulletin n'est disponible qu'en anglais conformément au Règlement 671/92, selon lequel il n'est pas obligatoire de la traduire en vertu de la Loi sur les services en français. Pour obtenir des renseignements en français, veuillez communiquer avec le ministère des Richesses naturelles et des Forêts au 1-800-667-1940.

Table of Contents

1.0 Introduction

1.1 Purpose

This Technical Bulletin provides direction on the administration of Section 16 of the Lakes and Rivers Improvement Act (LRIA) for existing dams, including the control structure and other structures and equipment on the dam site, and any temporary dams for the purpose of controlling water during construction. This Technical Bulletin also provides examples of common alteration, improvement and repair work which do not require LRIA Section 16 approval.

This Technical Bulletin does not apply to other works subject to LRIA approval such as: water crossings; channelizations; enclosures; pipelines; and cables.

1.2 LRIA Section 16 – Alterations, Improvements and Repairs

The Ministry of Natural Resources and Forestry has responsibility for the administration of the LRIA. LRIA Section 16 states that no person shall alter, improve or repair any part of a dam in the circumstances prescribed by the regulations, unless the plans and specifications for whatever is to be done have been approved.

Under Section 2(1)(b) of Ontario Regulation 454/96, Ministry approval is required to make alterations, improvements or repairs to a dam that holds back water in a river, lake, pond or stream to raise the water level, create a reservoir to control flooding or divert the flow of water, if the alterations, improvements or repairs may affect the dam's safety, structural integrity, the waters or natural resources. In addition, Section 2(2) of Ontario Regulation 454/96 specifies that LRIA Section 16 approval is required before a person operates a dam in a manner different from that contemplated by previously approved plans and specifications.

The LRIA Administrative Guide (MNR 2011) provides an overview of the LRIA, its application and the process for seeking approval. This Bulletin must be read in conjunction with the LRIA Administrative Guide. Where there is an overlap in policy requirements between the LRIA Administrative Guide and this Bulletin, the provisions of this Bulletin shall prevail.

1.3 Aboriginal and Treaty Rights

The Ministry respects the existing Aboriginal and treaty rights recognized and affirmed by Section 35 of the Constitution Act, 1982 and is committed to meeting its constitutional and other legal obligations in respect of these rights, including the Crown's duty to consult and, where appropriate, accommodate. The duty to consult is triggered when the Crown has knowledge, real or constructive, of the

existence or potential existence of an Aboriginal or treaty right and contemplates conduct that might adversely affect that right.

Approvals under the LRIA may trigger the Crown's duty to consult, and in some situations, the Crown may delegate procedural aspects of its duty to consult to LRIA applicants. Proponents are encouraged to work closely with the Ministry when seeking LRIA approvals.

2.0 Works Requiring Approval

2.1 Works Subject to Section 16 Approval

The purposes of the LRIA will be a relevant factor in determining whether a proposed work is subject to LRIA Section 16 approval. Works subject to Section 16 approval include alterations, improvements or repairs that may affect the structural integrity or safety of the dam, or that may affect the waters or natural resources.

Proponents are responsible for complying with the requirements of the LRIA and obtaining any necessary legal authority required to alter, improve or repair a dam.

Examples of works that may require approval include, but are not limited to:

a) changes to the size of a dam;
b) changes to the size of spillways or other appurtenant discharge facilities to the dam;
c) changes in the hydraulic capacity of the dam;
d) reconstruction or partial reconstruction of a dam, spillway or other appurtenant discharge facility to the dam, which may include retrofitting an existing dam to produce waterpower;
e) installation of a cofferdam, if the installation is not within existing service or emergency repair gains (i.e. upstream of operational stoplog gains);
f) operation of a dam in a manner different from that contemplated by plans and specifications previously approved under LRIA Sections 14 or 16, including a permanent or temporary deviation from an approved Dam Operating Plan or from a previously approved dam operating requirement, and a revision to the rule curve (note: changes to dam operations approved through LRIA Section 23.1 will continue to be approved through LRIA Section 23.1); and
g) decommissioning a dam. For information regarding decommissioning, refer to the LRIA Dam Decommissioning and Removal Technical Bulletin (2011).

A list of common works at dams that do not require LRIA Section 16 approval is detailed in Section 4 of this Bulletin.

If proponents are uncertain if LRIA approval is required, proponents should contact the Ministry to seek clarification as required. This clarification should be sought well in advance of proposed construction, to avoid unnecessary delays. The Ministry shall determine if proposed works require LRIA consideration and will provide written clarification to the proponent.

LRIA Section 16 approval does not relieve the proponent from compliance with the provisions of any other applicable federal, provincial, municipal, conservation authority or other agency's regulatory requirements and does not provide proponents with any guarantee that other required permits and approvals will be obtained in order to proceed with the proposed project. Proponents should not assume that undertaking works in accordance with conditions established by the Ministry through LRIA Section 16 approvals will address the regulatory interests of other agencies.

2.2 Emergency Repairs

Emergency repairs to a dam may sometimes be required to address an imminent threat to life and property or to prevent significant environmental impacts. The Ministry recognizes that emergency situations are a priority and will respond to the dam owner's request accordingly.

3.0 Application Requirements and Review Process

3.1 Applicable Standards

The majority of works submitted for LRIA approval require supporting calculations and drawings to be completed by a Professional Engineer licensed to practice in Ontario. Accordingly, all final drawings, specifications, plans and reports are required to be signed, sealed and dated by a Professional Engineer licensed to practice in Ontario. Section 1.3.5 of the LRIA Administrative Guide (MNR, 2011) provides additional information regarding this requirement.

Ministry standards for dam safety in Ontario are outlined in the LRIA Administrative Guide (MNR 2011) and associated technical bulletins (hereafter referred to as Ministry Standards).

LRIA approval may be issued if the proposed alteration, improvement or repair to a dam meets the standards established in LRIA technical bulletins. Proposed works that vary from Ministry standards may be approved by the Ministry, if the variance does not represent a marked departure from Ministry standards, or it can be demonstrated that the proposed work does not adversely affect the purposes of the LRIA.

Insofar as Ministry standards may not represent current engineering practice or address all design requirements, the proponent's design engineer may comply with the most applicable standards or codes. In these circumstances, the design engineer should document the rationale for applying the relevant or alternative standards or codes.

The proponent should contact the Ministry in advance of submitting an application, to assess the need to include additional information to support the application, where the use of alternative standards is being proposed that vary from Ministry standards.

3.2 Submission Requirements

The proponent's design engineer must provide complete information to the Ministry such that the application for the proposed works can be reviewed in detail. Information submitted for Ministry review should be well organized and clearly presented. The following is a general list of submission requirements:

- report describing:
    - proposed work and rationale, existing site conditions, and supporting analyses, calculations, assumptions, interpretations and

    - dam operation requirements used in determining the design of the proposed works;
    - documentation and rationale of any deviation or departure from Ministry standards;
    - design details of the components of the dam that are physically attached or logically connected to the proposed works as applicable;
- plans (design drawings) showing the design and construction details of the proposed works;
- material and technical specifications;
- sediment control and water handling/de-watering plan;
- construction schedule indicating start and completion dates for all proposed work, including any construction timing restrictions; and
- detailed analysis with supporting information of risks where phasing of work is proposed.

The above is not a complete list of all possible information that may be required to support an application. Additional or alternative application requirements may be identified through discussions with the Ministry.

Where the proposed work has the potential to cause either permanent or temporary flooding or erosion of land beyond existing conditions or to cause additional potential impacts that would conflict with the purposes of the LRIA, the Ministry will likely request additional information to support the Section 16 review. Proponents are responsible for determining where and what measures should be adopted to mitigate potential impacts related to the proposed work. Proponents should include an assessment of potential impacts and measures to mitigate identified impacts, as part of their application. Where the proposed work is subject to the Environmental Assessment Act, documentation prepared during the environmental assessment will be the Ministry's primary tool for identifying potential impacts associated with proposed work and measures to address those impacts.

The final plans and technical specifications shall be submitted and stamped "For Construction", signed and sealed by the design engineer. Should the proponent determine prior to or during the construction work that modifications to the approved design that may impact the dam's safety and/or structural integrity, the waters or natural resources are necessary, the design engineer shall identify those aspects of the work which were modified and meet the aforementioned conditions, and submit the design changes to the Ministry for approval.

3.2.1 Additional Information

Where alterations, improvements or repairs to a dam may affect the safe operation of components that are physically attached or logically connected to

the proposed works, additional information may be required to support the Ministry's Section 16 review, specific to those components of the dam that are physically attached or logically connected. To facilitate timely Ministry review of applications, proponents are encouraged to proactively address any impacts of the proposed works on the safe operation of physically attached or logically connected components as part of the application.

In exceptional circumstances, the Ministry may give consideration to requesting work or studies (e.g. dam safety review) considered necessary to further the purposes of the Act, where there are significant concerns or uncertainty regarding the condition of the dam. In these situations, the Ministry will give due consideration to whether these matters should be considered as part of the Section 16 application, or whether the Ministry should exercise its authority through an order under LRIA Section 17.

In some instances where the Section 16 application for proposed work is for an existing dam, but LRIA Section 14 location approval has not been previously issued by the Ministry, additional information may be requested to ensure that the purposes of the Act are considered.

3.2.2 Consultation

Depending on the scope and scale of the proposed work, the Ministry may require proponents to consult with individuals or communities who may be potentially affected by the proposed work prior, to the Ministry making a decision on the application.

Where proposed work is subject to the Environmental Assessment Act (EAA), the Ministry will rely on the EA process as the primary tool for the proponent to undertake consultation with potentially affected individuals or communities. The Ministry retains the right to direct or undertake additional consultation where necessary.

Where proposed work is not subject to the EAA, the Ministry will determine potential consultation requirements on a project specific basis. Consultation requirements will be determined in discussion with project proponents and will consider the scope of work and the potential level of public interest in the proposed works.

3.3 Scheduling of Works

In certain circumstances, proposed works may be phased over a longer timeframe, where it is demonstrated that phasing is necessary. To support an application to phase the work over a longer timeframe, the proponent must provide documentation on the rationale and timing to complete all of the

proposed work. The documentation shall include a detailed description, drawings and schedules of the proposed work to be completed in each phase. Proponents must identify risks (e.g., winterization, flood events, scour and erosion) to undertaking proposed work over a longer term for each phase of the work, along with complete details of how the proponent will mitigate those risks until the proposed work is complete.

Where approval has been issued for works which will be phased over time, and if circumstances arise leading to changes in either the phasing or the scheduling, or if changes to project risks are identified, the Ministry may provide flexibility to revise the phasing or scheduling through an additional approval. The proponent shall provide the Ministry with written documentation requesting a revision to the phasing and/or schedule, clearly defining the proposed changes, supporting rationale, and any impacts to mitigation measures which may have, or have to be implemented. Changes to the schedule or phasing shall not be implemented by the proponent, until additional Section 16 approval has been issued by the Ministry.

3.4 Application Review

The following subsections describe the LRIA Section 16 application review and approval process (Figure 1).

3.4.1 Scoping Meeting

Prior to application submission, proponents should contact the Ministry to discuss the need or benefit of a scoping meeting with Ministry staff well in advance of any planned construction period. The purpose of the scoping meeting is to: determine LRIA approval requirements; discuss the application review and approval process; identify application information requirements; and discuss potential use of alternative standards or codes contemplated by the proponent.

The scoping meeting will facilitate a more efficient and effective application process by offering the Ministry an opportunity to learn more about the proposed work and project timelines, and offering proponents an opportunity to better understand the approval process and timelines associated with review and approval.

Proponents are also advised to engage other relevant agencies who may have regulatory requirements related to the proposed work. During the scoping meeting, the Ministry may identify to the proponent, other regulatory requirements that may apply.

3.4.2 Application for Section 16 Approval

The application review process commences with the submission of an application for LRIA Section 16 Plans and Specifications approval. It is the responsibility of the proponent to submit a complete application.

3.4.3 Review for Application Completeness

The Ministry will acknowledge receipt of an application, review the application and advise the proponent within 30-60 days if the application is complete. If the application is incomplete, proponents will be notified in writing of additional information required. Depending on the scope of additional information required and the time frame to provide it, the Ministry may place the application on hold, or return the application to the proponent. This determination will be made by the Ministry through discussions with the proponent. Where an application is returned to the proponent, the 30-60 day review period for completeness will restart upon submission of the additional information requested.

3.4.4 Review of the Section 16 Application

Once an application is deemed complete, the Ministry will complete a detailed review of the proposed work to determine whether it meets Ministry standards and provides for the purposes of the LRIA, and will advise the proponent in writing of its decision within 60 days. Where additional information is required to support the detailed review, the Ministry will identify in writing additional required information and the rationale. In such circumstances, the 60 day review timeline will be put on hold until the Ministry receives the requested information.

3.4.5 Issuance of Decision

In issuing a decision under LRIA Section 16, the Ministry may:

- approve the application;
- approve the application subject to such conditions or with such changes considered advisable to further the purposes of the LRIA; or
- refuse the application.

Where the Ministry intends to approve the Section 16 application subject to conditions or changes, a Letter of Approval will be issued to the proponent outlining the conditions or changes which must be met by the proponent. Conditions or changes shall be within the scope of LRIA Section 16 and must relate to the proposed works being applied for, those components of the dam that are physically attached or logically connected to the proposed works that may be affected, or to potential negative impacts resulting from the proposed work that would conflict with the purposes of the LRIA (where applicable).

Where the Ministry refuses a LRIA Section 16 application, a Letter of Intent to Refuse Plans and Specifications Approval will be issued to the proponent identifying the supporting rationale and any additional measures the proponent can take to address any outstanding concerns. The Letter of Intent to Refuse Plans and Specifications Approval will notify the proponent that unless the Ministry receives a request within 15 business days from the proponent for an inquiry, the application will be refused.

Requests for an inquiry under the LRIA are referred by the Ministry to the Office of the Mining and Lands Commissioner. Additional information on appeals to the Office of the Mining and Lands Commissioner is referenced in the LRIA Administrative Guide (MNR, 2011).

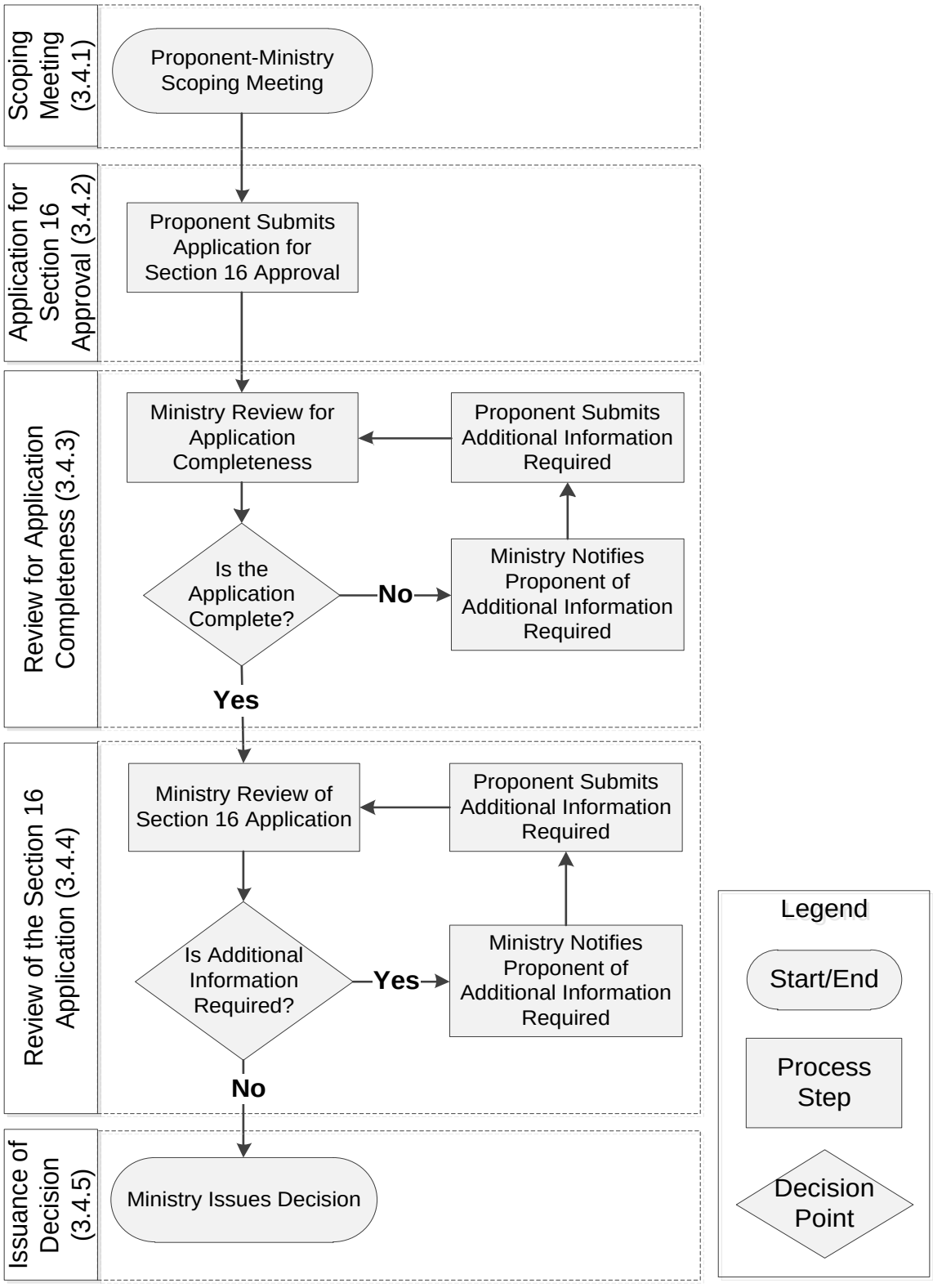


Figure 2: Lakes and Rivers Improvement Act Application Review Process

3.5 Expiration of Approval

If construction completion dates stated in the Section 16 approval are expected to be exceeded, proponents should contact the Ministry as soon as it is apparent that completion dates may not be met. Section 16 approval is no longer valid where construction completion dates are exceeded.

3.6 Memorandum of Understanding

The Ministry will give due consideration to the development of a memorandum of understanding (MOU) with dam owners who have:

- a portfolio of dams;
- extensive experience in the operation and maintenance of dams; and
- demonstrated successful design and implementation of similar proposed alteration, improvement or repair works at dams.

MOU's will be consistent with the purposes LRIA, and may establish specific commitments or procedures including, but not limited to, risk assessments, reporting and third party independent reviews.

4.0 Common Works Not Requiring LRIA Approval

This Section provides a list of alteration, improvement and repair works that do not require LRIA approval. The list must be read in conjunction with this Technical Bulletin to provide proper context in determining whether proposed works require LRIA approval. Even though the works may not require LRIA approval, proponents are responsible for complying with other statutes, regulations, standards, guidelines, codes, by-laws and the rules of other regulatory agencies associated with altering, improving or repairing an existing dam.

The list of works in Sections 4.1 to 4.9 have been predetermined to have minimal or no effect on the dam's structural integrity or safety, hydraulic capacity, public safety, the waters or natural resources. Proponents are responsible for ensuring that all work undertaken meets applicable Ministry standards and other professional guidelines and codes for the same type of work.

Proponents shall thoroughly document the rationale for proposed work that they assess does not require LRIA approval, as outlined in this Technical Bulletin and to keep this documentation on file.

The works identified herein are not intended to be a comprehensive list of all works that do not require LRIA approval. There may be additional proposed works that may not require approval.

If site conditions, methods of construction, or the extent and nature of the proposed work differ from the list below, the proponent shall contact the Ministry to determine if the proposed works require approval.

The Ministry will work with representatives of Ontario dam owners and their associations to monitor the effectiveness of this Technical Bulletin and in particular, the list of work that does not require LRIA Section 16 approval.

4.1 Concrete Structures

1. Minor concrete repair for gravity structures that meet Ministry standards involving a total weight reduction during the works not to exceed 2% of the mass of the component (including any voids that are to be filled) of the gravity dam structure under consideration or which will not affect the structural integrity of any element of the gravity dam or related discharge facility.

2. Minor Concrete Repair/ Spalling for non-gravity structures that meet Ministry standards - isolated repair area(s) less than 15m2, have a penetration depth not exceeding 75 mm, and involve exposure or

replacement of reinforcing steel, and have a total area(s) not to be comprised of more than 15% of the total concrete surface area of the dam.

3. Maintenance of Steel Gains - including minor concrete repair as defined in Section 4.1(2) above.

4. Replacement of Steel Gains in a like for like manner that will not affect the permanent discharge capacity of the spillway. Work may also include such items as associated concrete and doweling supporting the steel gains. Approval may still be required for any cofferdam (except as described in Section 4.8) or lowering of the head pond to replace the steel gains.

5. Foundation Drain Cleaning where cleaning equipment or method will not damage the drain.

6. Grouting of Joints/Cracks- isolated repair to be discontinuous and less than 25% of the component (e.g. pier nose, deck slab), and without chipping beyond that permitted for minor concrete repair as described in Sections 4.1(1) and 4.1(2) above. Approval may still be required for any cofferdam (except as described in Section 4.8) or lowering of the head pond.

7. Replacement of Expansion Joints- replacement of sealants at original expansion and contraction joints, without chipping beyond that permitted for minor concrete repairs for Non Gravity Structures (Section 4.1(2)).

4.2 Decks

1. Repair of Deck (concrete, steel or wood) - repair of concrete decks not to exceed that specified for concrete repair, repair of steel or wood decks and to be limited to repair of less than 15% of the members or area.

2. Removal or Replacement (like for like) of Deck that meets Ministry standards (concrete, steel or wood) - either temporary or permanent and does not:
    a. impact on the stability of the structure; or
    b. compromise the existing discharge capacity of a structure in a way which cannot be readily rectified when required or in an emergency condition

3. Repair, Replace, Upgrade or Install New - Handrail / Fall Arrestor Travel Restrict Systems.

4. Roadway Barrier – repair, replace or install new roadway barriers to dams that were originally designed for vehicle travel on deck surface.

4.3 Instrumentation

1. Repair or Upgrade dam safety and water level Instrumentation.

4.4 Earth Fill Structures

1. Foundation Drain Cleaning where cleaning equipment or method will not damage the drain.

2. Vegetation Removal and Control - work is associated with maintenance and the removal will not damage critical components of the dam.

3. Re-establishment of the crest surface, above the impervious core, to the most recent approved design grade and configuration and undertaken in accordance with the original design specifications.

4.5 Timber Crib Structures

1. Repair or Replacement of up-stream or sluiceway sheathing.

4.6 Penstocks and Turbines, Flash Boards, Stop Logs

1. Replacing wood stop logs with concrete or steel stop logs, but do not result in permanent or temporary changes to flows and levels and/or does not include or require the use of a cofferdam (except as described in Section 4.8).

2. Repair of Flashboards - repair or replacement of previously approved (like for like dimensions and elevation).

3. Repair or Replacement of Spillway Gates (like for like dimensions, elevations and type) provided all flow and level obligations continue to be met and no cofferdam (except as described in Section 4.8) and/or concrete repair work is required.

4. Localized Repairs of Penstock - (wood stave, steel, concrete) repair or replacement of saddle or support, but does not include work on or around thimble (minor repairs and only localized exposure of rebar).

5. Like for like replacement of turbine runner that does not serve to affect the ability to provide for low flow augmentation or discharge capacity.

4.7 Log Handling Equipment

1. Repair, modifications or replacement of in-kind Log Handling Equipment, as long as there remains an alternate capability to remove stoplogs or the dam has excess spill capacity to handle flows at all times and the work is not undertaken during expected high water periods.

4.8 Cofferdams

1. Installation of cofferdam, if installation is within existing service or emergency repair gains (i.e. upstream of operational stoplog gains).

4.9 Others

1. Installation of trash removal system, cleaning or repair of trash racks and trash removal equipment, including spillway cleaning and removal of debris from or in front of spillway.

2. Booms, Buoys, Signage - install, repair or replace booms, buoys or signage

3. Buildings – maintenance, repair or like for like replacement (footprint and loading) of shelter housings located on a dam (i.e. sheds for instrumentation or water level gauging, flow control equipment housing), that do not:
    a. involve the use of heavy equipment on the dam that would exceed the load bearing capacity of the dam; and
    b. impact the structural integrity of any component of the dam (e.g. deck).

4. Buildings - installation of new shelter housings located on a dam (i.e. sheds for instrumentation or water level gauging, flow control equipment housing) that does not:
    c. involve the use of heavy equipment on the dam that would exceed the load bearing capacity of the dam;
    d. impact the structural integrity of any component of the dam (e.g. deck); and
    e. interfere with water management operations under normal or emergency conditions.

5. Maintenance of existing shoreline protection works within the same footprint which will not impact the structural integrity and hydraulic capacity of any component of a dam, and does not include work on the dam itself. Other approvals (e.g. Public Lands Act) may still be required.

6. Maintenance of existing riprap to return it to the original configuration by adding appropriate supplemental material, but not including the removal and replacement of material. Other approvals (e.g. Public Lands Act) may still be required.

Glossary of Terms

Appurtenant facilities: means structures and equipment on a dam site including, but not limited to: intake and outlet structures; powerhouse structures; tunnels; canals; penstocks; surge tanks and towers; gate hoist mechanisms and their supporting structures; spillways; mechanical and electrical equipment; water control and release facilities.

Dam: a structure that is constructed which holds back water in a river, lake, pond, or stream to raise the water level, create a reservoir to control flooding, or divert the flow of water.

Logically connected: means those components of a dam that are not physically attached to the proposed alteration, improvement or repair, but are required to resist loads and forces in order to safely forward, hold back or divert water (e.g. control dams and block dams, fish-ways, water power generating facilities on the same reservoir, mechanical gates and remotely operated control systems).

Physically attached: means those components of a dam that are structurally connected to the proposed alteration, improvement or repair and work together to resist loads and forces to safely forward, hold back or divert water.

Ministry standards: dam safety standards as detailed in the Lakes and Rivers Improvement Act Administrative Guide and Technical Bulletins including:

1. Classification and Inflow Design Flood Criteria
2. Dam Decommissioning and Removal
3. Seismic Hazard Criteria, Assessment and Consideration
4. Structural Design and Factors of Safety
5. Spillways and Flood Control Structures
6. Geotechnical Design and Factors of Safety

APPENDIX F

Public/Agency Involvement & Feedback

F-1 - Agency Comments

F-2 - Public Comments

F-3 - Record of Meetings

APPENDIX F-1

Agency Comments

Canadian Environmental Assessment Agency
Ontario Regional Office
55 St. Clair Avenue East,
Room 907
Toronto, ON M4T 1M2

Agence canadienne d'évaluation environnementale
Bureau régional de l'Ontario
55, avenue St-Clair est,
bureau 907
Toronto (Ontario) M4T 1M2

May 4, 2016 Sent by E-mail

Paul Ziegler, C.E.T., Project Manager
Triton Engineering Services Limited
105 Queen Street West, Unit 14
Fergus, ON N1M 1S6
pziegler@tritoneng.on.ca

Dear Mr. Ziegler:

Re: Information on the *Canadian Environmental Assessment Act, 2012*

Thank you for your correspondence regarding the Town of Erin, Hillsburgh Dam and Bridge Station Street at Upper West Credit River.

The *Canadian Environmental Assessment Act, 2012* (CEAA 2012) focuses federal environmental reviews on projects that have the potential to cause significant adverse environmental effects in areas of federal jurisdiction and applies to physical activities described in the *Regulations Designating Physical Activities* (the Regulations). Based on the information provided, your project does not appear to be described in the Regulations. **Kindly review the Regulations to confirm applicability to the proposed project.**

If you believe the project is not subject to a federal environmental assessment, and do not submit a project description, we kindly request that you remove the Canadian Environmental Assessment Agency from your distribution list.

If you have questions, please get in touch with our office through the switchboard at 416-952-1576. The attachment that follows provides web links to useful legislation, regulation, and guidance documents.

Sincerely,

Anjala Puvananathan
Director, Ontario Region
Canadian Environmental Assessment Agency

Attachment – Useful Legislation, Regulation, and Guidance Documents

Attachment – Useful Legislation, Regulation, and Guidance Documents

For more information on the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), please access the following links on the Canadian Environmental Assessment Agency's (the Agency) website:

Overview of CEAA 2012
http://www.ceaa.gc.ca/default.asp?lang=En&n=16254939-1

Regulations Designating Physical Activities, and
Prescribed Information for a Description of a Designated Project Regulations
http://www.ceaa.gc.ca/default.asp?lang=En&n=9EC7CAD2-1

If your project is in a federally designated wildlife area or migratory bird sanctuary please check section 1 of the Regulations, which details the designated projects specific to those locations.

If it appears that CEAA 2012 may apply to your proposed project, you must provide the Agency with a description of the proposed project. Please see the link below to the Agency's guide to preparing a project description.

Guide to Preparing a Description of a Designated Project
http://www.ceaa.gc.ca/63D3D025-2236-49C9-A169-DD89A36DA0E6/Guide_to_Preparing_a_Description_of_a_Designated_Project_under_CEAA_2012.pdf

December 19, 2014

Dear Mr. Ziegler:

Re: Class Environmental Assessment Study – Schedule B
Proposal for the improved safety of the Hillsburgh Dam and Bridge
Town of Erin

Further to receipt of the Notice of Commencement, November 27, 2014, CVC staff offer the following preliminary comments:

It is the understanding of CVC staff that the Town of Erin is undertaking a Class Environmental Assessment (EA) for the purpose of improving safety of the Hillsburgh Dam and bridge.

Site Characteristics:

The study area is traversed by the West Credit River and a tributary of the West Credit River, associated hazards (flooding and erosion). In addition, the area contains wetlands and associated adjacent lands. As a result portions of the study area are subject to the Authority's Development, Interference with Wetlands, and Alterations to Shorelines & Watercourses Regulation (Ontario Regulation 160/06). This regulation prohibits altering a watercourse or wetland and prohibits development within the regulated area without the prior written approval of CVC (i.e. a permit).

Permit Approval Requirements:

In accordance with Ontario Regulation 160/06 (our Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation), a permit would be required from the CVC prior to commencement of the works involving development, interference with a wetland and/or alterations to a watercourse or shoreline.

Fish Habitat and Department of Fisheries and Oceans (DFO):

Please note that CVC is no longer administering the *Fisheries Act* on behalf of Fisheries and Oceans Canada (DFO). As a result, it is up to the proponent to ensure that his/her project meets the DFO requirements under the self-assessment process. See the link below for a description of the self assessment process and a list of projects/activities where DFO review is not required: http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html. Measures to avoid causing harm are noted here: http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/index-eng.html

EA Study Objectives:

The EA Study must clearly identify and quantify the environmental constraints and enhancement opportunities within the study area, including the following:

Aquatic Habitat and Valleylands:
The project needs to evaluate alternatives that minimize impacts to the form and function of the West Credit River and Hillsburgh Pond and if possible include opportunities for enhancement. The EA should list and describe the natural features (fish habitat, etc.) and site characteristics (e.g. Rolling topography, high water table, buffering vegetation, etc.) in the study area that may pose constraints to the project.

Credit Valley Conservation 1255 Old Derry Road, Mississauga, Ontario L5N 6R4
Phone (905) 670-1615 Fax (905) 670-2210

December 19, 2014
Re: Proposal for the improved safety of the Hillsburgh Dam and Bridge
Town of Erin

Stormwater Management:
The project should include quality and quantity control measures to treat stormwater runoff in accordance with Ministry of Environment and CVC guidelines. Typically we request that the proponent provide treatment for all new proposed impervious areas and where possible existing road surfaces.

Hydraulics and Meander Belt
Any alterations to any watercourse crossings may require a hydraulic analysis to ensure that there are no negative up or down stream impacts. In addition, the road improvements or reconstruction at a minimum should maintain existing depth flooding on the road or improve the road such that it is flood free under Regional Storm conditions. In addition, CVC requests that new bridges and where possible replacement bridges span the calculated meander belt of the watercourse.

Subwatershed Study:
The EA should ensure that the subwatershed study environmental targets and objectives are identified and identify proposed measures that implemented these targets and objectives.

Erosion and Sediment Controls
During the detailed design period of this project, all proposed methods to control sedimentation during construction and potential erosion following the completion of the project must be detailed. Furthermore, as means of minimizing impacts to aquatic habitat all works must be completed in the dry.

Restoration
All disturbed areas will need to be stabilized and restored with native/non-invasive seed mixes and woody species.

Given CVC's interest staff would like to be kept informed of future meetings and proceedings through the Environmental Assessment process. Please forward any information or reports when available to ensure that this Authority's policy and program interest are reflected in the planning and design components for this project.

Should you have any further questions please contact the undersigned at (905) 670-1615 extension 406

Regards,

Tyler Slaght
Regulations Officer

cc: **Town of Erin**
Attention: Larry Van Wyck (via email)

Ministry of Natural Resources and Forestry Guelph District
Attention: Rose Whalen (via email)

Ministry of Natural Resources and Forestry Peterborough District
Attention: Doug Ryan (via email)

July 29, 2016

Chris Clark
Triton Engineering Services Limited
105 Queen Street West, Unit 14
Fergus, ON
N1M 1S6

Dear Mr. Clark:

Re: Station Street and Hillsburgh Dam and Bridge Class Environmental Assessment
Town of Erin

Credit Valley Conservation (CVC) staff have reviewed the draft Natural Environment Report dated March 15, 2016 and the Preliminary Comparison and Ranking of Alternatives provided at the May 19 public meeting and provide the following comments.

Natural Hazards Discussion

Flooding

To date, CVC staff have not received any technical report or analysis with respect to the implications of any alternative to the Regulatory floodplain. For any option selected, it must be demonstrated that flooding will not be negatively impacted by the preferred alternative.

Options 1 and 2 for both Alternative C and Alternative D indicate that the bridge will meet the requirements to pass the 25 year storm. CVC's requirement is that flooding not be negatively impacted. Furthermore, Alternative B indicates the crossing would be able to convey the Regulatory Flood. It is unclear why the requirements for each option differ. The design target should be to convey the Regulatory Flood but as stated above, must at a minimum be no worse. Being able to convey the Regulatory Flood will improve safety on the road which may also impact scoring for public safety.

Erosion

Any option selected has the potential to change the rate of erosion for the Hillsburgh Pond and West Credit River on adjacent (up and downstream properties) thereby increasing the risk due to erosion or creating a hazard which currently does not exist. It must be demonstrated that the preferred alternative will not negatively impact erosion rates or create erosion hazards on any private property.

The Natural Environment Report prepared by Aboud & Associates Inc. indicates in Section 1.5 that the main criteria for evaluating the EA will be flood hazard reduction and sediment/erosion impact reduction. Sediment and erosion control is a concern but it will be limited to detailed design and construction phases of the project.

Any new channel must be designed in keeping with natural channel design principals. Please refer to CVC's Fluvial Geomorphology factsheets for more information.

Credit Valley Conservation 1255 Old Derry Road, Mississauga, Ontario L5N 6R4
Phone (905) 670-1615 Fax (905) 670-2210

Natural Environment Report

1.3 Existing Regulations

- A discussion on the West Credit Subwatershed Study should be added as a section.

1.4 Credit River Fisheries Management Plan

- While Brown Trout are present in this reach, Brook Trout are the target species for management in this area.

3.7 Aquatic Habitat Assessment

- It should be clarified that the watercourses in this area are coldwater and are managed as such, including the ponds. The ponds are artificially created warmwater environments.
- This section should also include a discussion on where Round Goby were found and the potential impacts they may have on the cold and warmwater species present in the ponds and up and downstream.
- This section should also include a discussion on Banded Killifish and how the alternatives may affect this species. This is one of only two known areas supporting Banded Killifish in the Credit River watershed.
- There is some discussion on the presence of full and partial barrier to fish movement but there is no mention of the impacts of barriers to fish movement. Please add a discussion.
- This section should also include a discussion on the thermal impacts of the ponds. CVC analyzed the data that was provided and it shows that in 2013, water discharging from the Hillsburgh pond was up to 17°C warmer than the tributary in aquatic habitat segments 1 and 2 and up to 8°C warmer than the tributary in aquatic habitat segment 4.
- The sandbags and plastic lining in the Ainsworth pond were placed there in 2013 to help contain Round Goby, not to reinforce the outfall and reduce erosion.
- CVC has no data to indicate carp are present in the Hillsburgh pond and as such, it is unlikely that the grate on the south tributary was put in place to control carp. It is more probable that this was installed as a trash rack.
- The West Credit is managed a connected as cold-water system (CRFMP). Anything that does not attempt to achieve this objective should be a negative from an aquatic habitat perspective. All other aquatic concerns are minor in relationship relative to this criterion.

3.8.2 Surficial Geology and Groundwater

- There is no information provided on groundwater levels, wells or discharge locations yet this one of the criteria used in the evaluation. Please provide data to support the evaluation or remove the criteria.

4.0 Summary of Natural Heritage Constraints

- Many of the species recorded were found in the study area but possibly not in the Hillsburgh pond itself (e.g. Bald Eagle flying over the Ainsworth pond, the fen downstream of the Hillsburgh pond or 39 species of wildlife considered significant in Wellington County). It would be helpful to identify those species specifically found in the Hillsburgh pond and adjacent areas upstream of the dam that may be affected by changes to the dam and/or road and the implications of those changes.

4.1.6 Aquatic Habitat Assessment

- Following the inclusion of a more complete discussion on aquatic habitat earlier in the report, this section should be expanded to better include a summary of aquatic habitat constraints.

4.2 Summary of Significant Features

- Please identify which significant features are in the Hillsburgh pond and adjacent areas upstream of the dam that may be affected by changes to the dam and/or road and the implications of those changes.
- Brown Trout are not being managed for in this section.

5.3 Summary of Impacts to the Environment

- The overwintering turtles criteria is included in the text but not in the evaluation table.
- For better clarity, the headings of the criteria in the text should be the same as the evaluation table.
- In the evaluation, there should be some clarification between short term construction related impacts (e.g. pond drawdown affecting overwintering turtles) that can be mitigated versus long term impacts (loss of the pond) that will be created or continue once the preferred alternative is implemented.
- Foraging Habitat for Little Brown Myotis – CVC is unclear on the habitat preference for this species. Please clarify the impact on this species when changing the habitat from an open water environment to a natural stream corridor.
- Amphibian Breeding Significant Wildlife Habitat – the report states that draining the pond will reduce the success rate for breeding amphibians in the short and long term. Given the amphibian species present in the pond (Gray Treefrog, Spring Peeper and Green Frog), it may be that removal of the pond will benefit amphibians since (a) small wetland pockets may be created rather than one large waterbody and (b) the elimination of habitat for predatory largemouth bass that feed on frogs.
- Fish Habitat – please provide additional discussion on how the alternatives will affect Round Goby and Banded Killifish.
- Provincially Significant Wetland – please clarify if changes to the hydrology will affect the whole PSW or just a few of the wetland features in the study area.
    - In 5.3.3, the report states that detailed hydrological changes are unknown at this time, however, an assessment of the impacts are detailed in the evaluation table. Please clarify.
- Landscape Features – please clarify how changes to the dam or road may affect the treed fen community downstream of the pond.
- Although CVC agrees that open water communities are rare and overall we want to maintain rare communities, due to the negative impacts of on-line open water communities and the need for continuous maintenance of the dam, we do not rank this community as high as a natural open water community.
- The study area was quite broad however only features or functions that would be impacted by any of the options need to be assessed. Therefore, need to separate out features or that would not be impacted by the project. For example, Bald Eagle, Bobolink and Eastern Meadowlark would not appear to be impacted by the project. Table 8 (or another table) would be more informative if only features that potentially would be impacted by the project are included.

Ranking of Alternatives

CVC has overall concerns with evaluation matrix and also wanted to highlight two areas of particular concern.

The evaluation of the costs associated with each option. It is the understanding of CVC staff that the costs associated with alternatives C and D, which include restoration of the wetland with plantings consistent with CVC's storm water management planting guidelines. CVC staff note that using this as a guide to determine costs of rehabilitation is not appropriate and may make the costs of these options higher than the reality.

It is unclear with respect to alternative B, whether the calculation of costs should consider the lifetime maintenance requirements for the structure as well as the potential costs of maintaining the online pond. Over time, the existing pond will get shallower or disappear due to sediment accumulation. CVC staff anticipate that maintaining the pond in the future would be costly, if supported.

CVC has concerns with ranking and weighting matrix used in the analysis of the ranking of alternatives. Of most concern is the additive scoring mechanism used in correlation with the weighting of each category. For example, a criterion receiving a positive ranking with medium weighting is scored an 8 but a negative impact in the categories with high weighting will receive a 9. Given the additive nature of the scoring system, there is more benefit to have a negative impact rather than a positive impact. CVC recommends reviewing the scoring system to include both positive and negative values so that the scoring reflects the impacts appropriately. CVC also recommends adding a positive-neutral category so that there are an equal number of positive and negative categories.

Conclusion

CVC staff request an opportunity to discuss CVC concerns regarding the environmental report as well as the ranking system used to determine the preferred alternative. There are specific concerns regarding the ranking and scoring of particular criteria however in our opinion these concerns would be best resolved through a meeting with the Town of Erin and MNRF. In light of these concerns CVC does not have an opinion on a preferred alternative at this time.

I trust that these comments will be of assistance. Please do not hesitate to contact the undersigned at (905) 670-1615 ext. 406 should you have any questions.

Yours truly,

Tyler Slaght
Regulations Officer

cc: Tara McKenna, MNRF (via email)
Greg Delfosse, Town of Erin (via email)

RESPONSE TO CVC COMMENTS: Dated July 29, 2016
Hillsburgh Dam and Bridge Environmental Assessment

Comments regarding the Hillsburgh Dam and Bridge Environmental Assessment and Draft Natural Heritage Report were received from the CVC on July 29, 2016. Below are CVC comments in bold and responses to comments relating to the Draft Natural Heritage Report (Dated March 15, 2016) and the Evaluation of Alternatives Matrix from PIC #1.

Natural Hazards Discussion

Flooding

- **To date, CVC staff have not received any technical report or analysis with respect to the implications of any alternative to the Regulatory floodplain. For any option selected, it must be demonstrated that flooding will not be negatively impacted by the preferred alternative.**

  Option 1 and 2 for both Alternative C and Alternative D indicate that the bridge will meet the requirements to pass the 25 year storm. CVC's requirement is that flooding not be negatively impacted. Furthermore, Alternative B indicates the crossing would be able to convey the Regulatory Flood. It is unclear why the requirements for each option differ. The design target should be to convey the Regulatory Flood but as stated above, must at a minimum be no worse. Being able to convey the Regulatory Flood will improve safety on the road which may also impact scoring for public safety.

  - ***TRTION Response:*** *Technical information related to hydrology will be included as part of the Project File Report. The conveyance of the Regulatory event will be examined when analyzing the Alternatives which include the reconstruction of the bridge.*

Erosion

- **Any option selected has the potential to change the rate of erosion for the Hillsburgh Pond and West Credit River on adjacent (up and downstream properties) thereby increasing the risk due to erosion or creating a hazard which currently does not exist. It must be demonstrated that the preferred alternative will not negatively impact erosion rates or create erosion hazards on any private property.**

- ***TRTION Response:*** *When evaluating the effects of erosion the project team feels this is beyond the scope of the Class EA. Erosion measures will be incorporated within mitigation strategies (long and short term) of the preferred alternative as well as at the design and construction stage.*

- **The Natural Environment Report prepared by Aboud & Associates Inc. indicates in Section 1.5 that the main criteria for evaluating the EA will be flood hazard reduction and sediment/erosion impact reduction. Sediment and erosion control is a concern but it will be limited to detailed design and construction phase of the project.**

  - ***AA Response:*** *Acknowledged, discussion related to the criteria for evaluating the Class EA has been removed from the NE report and discussed within the Project File Report. For the purpose of the Class EA, the long term effects of sediment transport have been analyzed.*

Natural Environment Report

- **1.3 Existing Regulations**

  - **A discussion of the West Credit River Subwatershed Study should be added as a section.**

    - ***AA Response:*** *A section discussing the West Credit River Subwatershed Study has been added to the report*

- **1.4 Credit River Fisheries Management Plan**

  - **While Brown Trout are present in this reach, Brook Trout are the target species for the management of this area.**

    - ***AA Response:*** *The report has been revised to indicate Brook Trout as being the target species for management*

- **3.7 Aquatic Habitat Assessment**

    - **It should be clarified that the watercourses is this area are coldwater and are managed as such, including the ponds. The ponds are artificially created warmwater environments.**

        - **AA Response:** *AA has clarified in the report that the whole area is a coldwater system, with an anthropogenic, warm water condition occuring in the pond.*

    - **This section should also include a discussion on where the Round Goby is found and the potential impacts they may have on the cold and warmwater species present in the ponds and up and downstream.**

        - ***AA Response:*** *AA has added a section discussing Round Goby habitat and impacts to the cold and warm water fish communities. Additional information, if available, regarding where the species is found within the system will be requested from CVC and included in the report.*

    - **This section should also include a discussion on Banded Killifish and how the alternatives may affect this species. This is one of the only two known areas supporting Banded Killifish in the Credit River Watershed.**

        - ***AA Response:*** *AA has added a section discussing Banded Killifish habitat. Additional information, if available, regarding where the species is found within the system will be requested from CVC and included in the report.*

    - **There is some discussion on the presence of full and partial barriers to fish movement but there is no mention of the impacts of barriers to fish movement. Please add a discussion.**

        - ***AA Response:*** *AA has added a section discussing potential impacts of fish barriers to the target management species. Impacts include: the inability for fish to migrate into upstream habitat for breeding and thermal refuge; population isolation, which can reduce genetic variability and outbreeding as well as, creation of isolated small populations that are more susceptible to extirpation from stochastic effects.*

- **This section should also include a discussion on the thermal impacts of the ponds. CVC analyzed the data that was provided and it shows that in 2013, water discharged from the Hillsburgh pond with up to 17°C warmer that the tributary in aquatic habitat segment 1 and 2 and up to 8°C warmer than the tributary in aquatic habitat segment 4.**

  - ***AA Response:*** *AA has used the provided CVC data to discuss the thermal impacts of the pond to the watercourse and how increased temperatures can impact fish communities targetted for management.*

- **The sandbags and plastic lining in the Ainsworth pond were placed there in 2013 to help contain Round Goby, not to reinforce the outfall and reduce erosion.**

  - ***AA Response:*** *AA has made this correction in the report.*

- **CVC has no data to indicate carp are present in the Hillsburgh Pond and as such, it is unlikely that the grate on the south tributary was put in place to control carp. It is more probable that this was installed as a trash rack.**

  - ***AA Response:*** *AA has made this correction in the report.*

- **The West Credit is managed as a connected cold-water system (CRFMP). Anything that does not attempt to achieve this objective should be a negative from an aquatic habitat perspective. All other aquatic concerns are minor in relationship relative to this criterion.**

  - ***AA Response:*** *AA has made the recommended changes in evaluation table.*

- **3.8.2 Surfacial Geology and Groundwater**

  - **There is no information provided on groundwater levels, wells or discharge locations yet this is one of the criteria used in the evaluation. Please provide data to support the evaluation.**

    - ***Triton Response:*** *Hydrogeology data has since been completed by Ray Blackport and will be a part of the Project File Report.*

- **4.0 Summary of Natural Heritage Constraints**

    - **Many of the species recorded were found in the study area but possibly not in the Hillsburgh pond itself (e.g. Bald Eagle flying over the Ainsworth pond, the fen downstream of the Hillsburgh pond or 39 species of wildlife considered significant in Wellington County). It would be helpful to identify those species specifically found in Hillsburgh pond and adjacent areas upstream of the dam that may be affected by changes to the dam and/or road and the implications of those changes.**

        - ***AA Response:*** *Acknowledged – The study area was developed in consultation with the project team, which included CVC and MNRF, at the outset of the project. The study area was chosen to capture the full area that may be impacted by the removal of the dam. All species and natural heritage features observed in the study area have the possibility of being impacted directly or indirectly by changes to the dam. As well, data was provided from various sources of which we do not have the spatial information in all cases to do a post hoc determination of what was within the immediate vicinity of the pond and dam. Locations of specific Significant Wildlife observations and Significant Wildlife Habitat are provided in Figure 7 of the Natural Heritage report.*

- **4.1.6 Aquatic Habitat Assessment**

    - **Following the inclusion of a more complete discussion on aquatic habitat earlier in the report, this section should be expanded to better include a summary of aquatic habitat constraints.**

        - ***AA Response:*** *AA has updated the Aquatic Habitat Assessment summary to incorporate the additional information included in the Aquatic Habitat Assessment section.*

- **4.2 Summary of Significant Features**

    - **Please identify which significant features are in the Hillsburgh pond and adjacent area upstream of the dam that may be affected by changes to the dam and/or road and the implications of those changes.**

- ***AA Response:*** *Acknowledged – The study area was developed in consultation with the project team, which included CVC and MNRF, at the outset of the project. The study area was chosen to capture the potential area that may be impacted by the removal of the dam. All species and natural heritage features observed in the study area have the possibility of being impacted directly or indirectly by changes to the dam. As well, data was provided from various sources, and spatial information may not be available in all cases to do a post hoc determination of what was within the immediate vicinity of the pond and dam. Locations of specific Significant Wildlife observations and Significant Wildlife Habitat is provided in Figure 7.*

- *AA has indicated in the Summary of Significant Feature (Table 8.) which species or features are most likely to be directly impacted by changes in the dam and pond and were therefore given greater consideration in the evaluation. Significant features that may be impacted by changes to the dam are described and identified in section 5.3 and table 9, significant features not anticipated to be impacted, were not carried forward from section 4.2.*

- **Brown Trout are not being managed for in this section.**

  - ***AA Response:*** *AA has made this correction in the Natural Heritage report.*

- **5.3 Summary of Impacts to the Environment**

  - **The overwintering turtle criteria are included in the text but not in the evaluation table.**

    - ***AA Response:*** *Overwintering Turtle Habitat is described under Significant Wildlife Habitat in the Evaluation Table.*

  - **For better clarity, the headings of the criteria in the text should be the same as the evaluation table.**

    - ***AA Response:*** *AA has attempted to address this recommendation and provide greater clarity. However, due to lumping of categories, section headings in the text are not always the same as in the evaluation table.*

- **In the evaluation, there should be some clarification between short-term construction related impacts (e.g. pond drawdown affecting overwintering turtles) that can be mitigated versus long-term impacts (loss of the pond) that will be created or continue once the preferred alternative is implemented.**

    - ***AA Response:*** *The evaluation table has been changed to have a greater focus on the long-term impacts rather than short-term construction impacts.*

- **Foraging Habitat for Little Brown Myotis – CVC is unclear on the habitat preference for this species. Please clarify the impacts of this species when changing the habitat from an open water environment to a natural stream corridor.**

    - ***AA Response:*** *AA has revised the report to include more information on habitat requirements for Little Brown Myotis and how the removal of the dam could impact this species.*

- **Amphibian Breeding Significant Wildlife Habitat – the report states that draining the pond will reduce success rate for breeding amphibians in the short and long term. Given the amphibian species present in the pond (Gray Treefrog, Spring Peeper and Green Frog), it may be that removal of the pond will benefit amphibians since (a) small wetland pockets may be created rather than one large waterbody and (b) the elimination of habitat for predatory largemouth bass that feed on frogs.**

    - ***AA Response:*** *Acknowledged* – Changes to habitat from draining the pond are unknown, and therefore we cannot assume the new habitat will benefit amphibian breeding unless it is specifically designed for that purpose. The current pond provides some habitat which will be lost, hence the negative rating.

- **Fish Habitat – please provide additional discussion on how the alternatives will affect Round Goby and Banded Killifish.**

    - ***AA Response:*** *AA has revised the report to include more information on Round Goby and Banded Killifish habitat requirements and a discussion on how the alternatives could affect fish communities.*

- **Provincially Significant Wetland – please clarify if changes to the hydrology will affect the whole PSW or just a few of the wetland features in the study area. In section 5.3.3, the report states that detailed hydrological changes are unknown at this time, however, an assessment of the impacts are detailed in the evaluation table. Please clarify.**

    - ***AA Response:*** *The project team feels that the quantification of changes to the PSW based on hydrology is beyond the scope of the EA. There would be some impact but it is unknown at this time. Hydrogeology data has since been completed by Ray Blackport and will be a part of the Project File Report.*

- **Landscape Features – please clarify how changes to the dam or road may affect the treed fen community downstream of the pond.**
    - ***AA Response:*** *AA has revised the report to include more information on how the selection of alternatives could impact the downstream fen community.*

- **Although CVC agrees that open water communities are rare and overall we want to maintain rare communities, due to the negative impacts of on-line open water communities and the need for continuous maintenance of the dam, we do not rank the community as high as a natural open water community.**

    - ***AA Response:*** *Acknowledged – Ranking system accounts for and weighs the negative effects of the open water community. The open water community is still considered rare (ESSMO 2011) and should be evaluated as such. The weighting system reflects the higher value of the cold water system over the rare open water community. As well, the maintanence of the dam aspect is evaluated under a separate scoring criteria.*

- **The study area was quite broad however only features or functions that would be impacted by any of the options need to be assessed. Therefore, need to separate out features or that would not be impacted by the project. For example, Bald Eagle, Bobolink, and Eastern Meadowlark would not appear to be impacted by the project. Table 8 (or another table) would be more informative if only features that potentially would be impacted by the project are included.**

    - ***AA Response:*** *Acknowledged – The study area was developed in consultation with the project team, which included CVC and MNRF, at the outset of the project. The study area was chosen to capture the full area that may be*

impacted by the removal of the dam. All species and natural heritage features observed in the study area have the possibility of being impacted directly or indirectly by changes to the dam. As well, data was provided from various sources, and spatial information may not be available in all cases to do a post hoc determination of what was within the immediate vicinity of the pond and dam. Locations of specific Significant Wildlife observations and Significant Wildlife Habitat is provided in Figure 7.

- ***AA** has indicated in the Summary of Significant Feature (Table 8.) which species or features are most likely to be directly impacted by changes in the dam and pond and were therefore given greater consideration in the evaluation.*

Ranking of Alternatives

The evaluation of the costs associated with each option. It is the understanding of CVC that the costs associated with alternatives C and D, which include restoration of the wetland with plantings consistent with CVC's stormwater management planting guidelines. CVC staff note that using this as a guide to determine costs of rehabilitation is not appropriate and may make the costs of these options higher than the reality.

- ***AA Response:** Acknowledge – AA acknowledges that it may be possible to implement a satisfactory high-quality restoration plan for less than the costs estimate provided. However, in the absence of formal guidelines or guidance from the CVC, it was felt that a conservative estimate following generally permitted approaches was prudent. The restoration cost has not been revised based on the provided comment. If CVC can provide a guideline for naturalized restoration the cost will be revised where appropriate.*

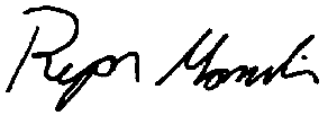
- **It is unclear with respect to alternative B, whether the calculation of costs should consider the lifetime maintenance requirements for the structure as well as the potential costs of maintaining the online pond. Over time, the existing pond will get shallower or disappear due to sediment accumulation. CVC staff anticipates maintaining the pond in the future would be costly, if supported.**

  - ***TRTION Response:** Acknowledged, the Regular Operations and Maintenance criteria scores have been revised to include these factors. A cost breakdown will be included as part of the Project File Report.*

If you and further questions or comments, please feel free to contact the undersigned.

Yours truly,

ABOUD & ASSOCIATES INC.



Ryan Hamelin, M.Sc., Terrestrial and Wetland Ecologist

TRITON ENGINEERING SERVICES LIMITED

Chris Clark, M.A.Sc., P. Eng.

August 26, 2016

Chris Clark
Triton Engineering Services Limited
3027 Harvester Road, Suite 400
Burlington, ON
L7N 3G7

Dear Mr. Clark:

Re: Station Street and Hillsburgh Dam and Bridge Class Environmental Study
Town of Erin

Following up the meeting which took place Credit Valley Conservation (CVC) staff provide the following comments regarding the ranking matrix.

General

- The scoring evaluation should be reviewed and revamped. Given that the overall score is additive, it seems incorrect to have negative scores scoring higher than positive scores.
- The inclusion or exclusion of both positive and negative future changes should be consistently applied in the assessment. For example, dam failure, cultural heritage and others include future changes while in others (e.g. regular operations and maintenance, Landscape Features, PSW and others (e.g. the pond filling in) they do not.
- Consider adding a positive-neutral category so that there are an equal number of positive and negative categories.
- Consider combining Species at Risk and Rare Species criteria
- Consider combining Landscape features and Significant Wildlife Habitat criteria
- Consider combining Economic Feasibility criterion with Capital Construction while leaving Liability separate.
- Consider adjusting the weighting for combined criteria.

Hydrology & Hydraulics

- Alternatives C1, C2, D1 and D2 should consider rebuilding the road to pass the Regulatory Flood event.
- Considering the location of the fire hall on Station Street and the importance of Station Street to provide emergency access, the target span should be to pass the Regulatory Flood event. Detailed justification as to why this could not be achieved is to be provided.
- At a minimum flood elevations must not increase on Station Street on any adjacent private properties.

Sediment Transport

- The sediment transport scoring for B1 and B2 should be the same as the do nothing since these options do not improve sediment transport.
- The sediment transport scoring for C and D should be positive since sediment transport will be restored under these options.

Hydrogeology

- Is there any data to support lowered dug wells and private ponds when the pond has been drawn down in the past? Is there any supporting technical information available?

- If there are impacts to dug wells as a result of drawdown from the pond, CVC staff believe that there would also be impacts to the PSW however these impacts have not been identified.
- The hydrogeology scores for do nothing, B1 and B2 should be neutral.

Transportation

- Clarify why the transportation scores for B2, C1 and C2 are different.

Fish Habitat

- Fish habitat criteria should be renamed to aquatic habitat connectivity since it only mentions barriers. B1 and B2 should also be negative due to long term thermal and barrier impacts. Points about thermal impacts from an offline pond should be deleted.
- Water quality, water temperature and invasive species should also be included in how this is scored. Some consideration for climate change might also be included.
- The West Credit is managed a connected as cold-water system (CRFMP). Anything that does not attempt to achieve this objective should be a negative from an aquatic habitat perspective. All other aquatic concerns are minor in relationship relative to this criterion.

SWH/Rare Habitat Species

- Little Brown Myotis is unconfirmed at the pond so will this be an actual impact? This appears to influence the scoring for D1.
- Species at Risk scores for B1 and B2 should be neutral.
- Alternative C option 1 and Alternative D option 1– it is not clear if the dam is removed what the impact to the wetland and associated SWH. CVC staff expect the open water feature to be lost/significantly reduced however we would expect that the rest of the wetland would remain therefore, potential impacts to turtle overwintering and amphibian breeding may not be significant.

Rare or Important Landscape Features

- Alternative C option 1 and Alternative D option 1- due to the negative impacts of on-line ponds and the long term maintenance CVC suggests moving the scoring to Negative (short-term, minor or potential).
- The Landscape Features scores for B1 and B2 should be neutral, like they are for SAR, SWH and rare species.

PSW

- It is unclear what the potential impacts are for alternative C1 and alternative D1. Will the wetland be filled in and an upland area created? If so, in order to separate options 1 from options 2 it should be clearly stated that with option 1 there will be loss of wetland (i.e. the area will be filled in and made into upland), while option 2 will recreate an open water wetland and associated functions. Therefore, option 1 will be negative (long-term, extensive, and definitive) while option 2 would be neutral or negative (short –term minor, potential)
- It is unclear if the extent of PSW may change under any of the options but the type of wetland may (marsh to conifer swamp). Is this an impact?
- The Provincially Significant Wetlands score for A should either be neutral since all the other natural heritage feature scores are neutral or they should all be negative if future dam failure is included (not sure it should be).
- The PSW scores for C1 and D1 are likely different (maybe more negative) than C2 and D2.

Economic Environment

- Please clarify how the cost estimates were determined. For example, some of the alternatives mention that the cost of the eventual replacement of the bridge is included. Other future costs such as pond dredging and dam maintenance should also be included. As well, some of the costs of the environmental

improvements may be able to be funded by external funding so the costs of the higher priced options may not be fully borne by the Town.

- The scoring for the alternatives should be rethought. For example, is A the only positive since it has a cost of $0 or should the options be ranked by range or some other way? It seems incorrect that C1 and D2 are within $40,000 yet D2 is negative while C1 is negative-neutral. These should be the same scores.
- For regular operations and maintenance, Options A, B1 and B2 should mention the future cost of of any maintenance of the on-line pond. The scores for all options should also be rethought (i.e. C1 and D1 should be positive, not negative).
- Liability scores for B1 and B2 should be the same as A.
- Liability scores for C2 and D2 should be positive or positive-neutral.

Agency Regulations

- CVC recommends that Agency Regulations is not an appropriate criterion because the scores would be the same for all alternatives except for A. If it is kept, Fisheries and Oceans Canada (DFO) should also be on the list of approval agencies.

I trust that these comments will be of assistance. Please do not hesitate to contact the undersigned at (905) 670-1615 ext. 406 should you have any questions.

Yours truly,

Tyler Slaght
Regulations Officer

RESPONSE TO CVC COMMENTS: Dated August 26, 2016
Hillsburgh Dam and Bridge Environmental Assessment

Comments regarding the Hillsburgh Dam and Bridge Environmental Assessment and Draft Natural Heritage Report were received from the CVC on August 26, 2016. Below are CVC comments in bold and responses to comments relating to the Draft Natural Heritage Report (Dated March 15, 2016) and the Evaluation of Alternatives Matrix from PIC #1.

General

- **The scoring evaluation should be reviewed and revamped. Given that the overall score is additive, it seems incorrect to have negative scores scoring higher than positive scores.**
    - ***TRTION Response:*** *The scoring has been adjusted and updated to reflect positive and negative values.*
- **The inclusion or exclusion of both positive and negative future changes should be consistently applied in the assessment. For example, dam failure, cultural heritage and others include future changes while in others (e.g. regular operations and maintenance, Landscape Features, PSW and others (e.g. the pond filling in) they do not.**
    - ***TRTION Response:*** *The evaluation of alternatives has been updated to be more consistent with the long term effects of each alternative.*
- **Consider adding a positive-neutral category so that there are an equal number of positive and negative categories.**
    - ***TRTION Response:*** *Acknowledged, a positive-neutral category has been added.*
- **Consider combining Species at Risk and Rare Species criteria.**
    - ***TRTION Response:*** *Acknowledged, SAR and Rare Species criteria have been combined.*

- **Consider combining Landscape features and Significant Wildlife Habitat Criteria.**

    - ***TRTION Response:*** *Landscape features and PSW criteria have been combined as per MNRF suggestion.*

- **Consider combining Economic Feasibility criterion with Capital Construction while leaving Liability separate.**

    - ***TRTION Response:*** *Acknowledged, economic feasibility has been removed as this is directly related and encompassed within the Capital Construction criteria.*

- **Consider adjusting the weighting for the combined criteria.**

    - ***TRTION Response:*** *Acknowledged, in all cases, weighting has been adjusted, accordingly.*

Hydrology and Hydraulics

- **Alternatives C1, C2, D1 and D2 should consider rebuilding the road to pass the Regulatory Flood event.**

    - ***TRTION Response:*** *Acknowledged, these options will consider rebuilding the road to pass the Regulatory Flood.*

- **Considering the location of the fire hall on Station Street and the importance of Station Street to provide emergency access, the target span should be to pass the Regulatory Flood event. Detailed justification as to why this could not be achieved is to be provided.**

    - ***TRTION Response:*** *The details of sizing and capacity for this particular criterion will be evaluated at the design stage.*

- **At a minimum flood elevations must not increase on Station Street on any adjacent private properties.**

    - ***TRTION Response:*** *Acknowledged.*

Sediment Transport

- **The sediment transport scoring for B1 and B2 should be the same as the do nothing since these options do not improve sediment transport.**

    - ***TRTION Response:*** *Options B1 and B2 will involve some type of maintenance which deals with improving the accumulation and transport of sediment. Therefore, B1 and B2 are considered negative-neutral.*

- **The sediment transport scoring for C and D should be positive since sediment transport will be restored under these options.**

    - ***TRTION Response:*** *Acknowledged, these have been revised to a positive scoring.*

Hydrogeology

- **Is there any data to support lowered dug wells and private ponds when the pond has been drawn down in the past? Is there any supporting technical information available?**

    - ***TRTION Response:*** *Surrounding residence claim their shallow wells go down with the lowering of the pond, however; there are no documented cases. Hydrogeology data has since been completed by Ray Blackport and will be a part of the Project File Report.*

- **If there are impacts to dug wells as a result of drawdown from the pond, CVC staff believe that there would also be impacts to the PSW however these impacts have not been identified.**

    - ***TRTION Response:*** *The Hydrogeology report concludes that effects to dug wells would be minimal with exceptions to B1 and B2.*

- **The hydrogeology scores for do nothing, B1 and B2 should be neutral.**

    - ***TRTION Response:*** *Alternative B1 and B2 are scored negative-neutral as there could be potential for water quality impacts once the pond is dredged. In order to prove these assumptions, further monitoring will be required.*

Transportation

- **Clarify why the transportation scores for B2, C1 and C2 are different.**

- ***TRTION Response:*** *Transportation scores differ as the evaluation encompasses the bridge and the dam. The bridge has a large impact on safe and adequate transport across the entire structure (ie; single to double lane).*

Fish Habitat

- **Fish habitat criteria should be renamed to aquatic habitat connectivity since in only mentions barriers. B1 and B2 should also be negative due to long term thermal and barrier impacts. Points about thermal impacts from an offline pond should be deleted.**

  - ***AA Response:*** *The criteria in the evaluation were renamed to Aquatic/Fish Habitat. B1 and B2 were changed to a negative rank.*

- **Water quality, water temperature, and invasive species should also be included in how this is scored. Some consideration for climate change might also be included.**

  - ***AA Response:*** *Water quality, water temperature, and invasive species have been considered under the Aquatic/Fish Habitat criteria.*
  - ***AA*** *has not included a section on the impacts of climate change, as this is outside the scope of the project and approved Terms of Reference.*

- **The West Credit is managed as a cold-water system (CRFMP). Anything that does not attempt to achieve this objective should be a negative from an aquatic habitat perspective. All other aquatic concerns are minor in relationship relative to this criterion.**

  - ***AA Response:*** *AA has made recommended change in evaluation table.*

SWH/Rare Habitat Species

- **Little Brown Myotis is unconfirmed at the pond so will this be an actual impact? This appears to influence the scoring for D1.**

  - ***AA Response:*** *Acknowledged – The presence of Little Brown Myotis is confirmed by MNRF and they are known to use the pond area as foraging habitat. Removal of the pond is considered negative-neutral as the removal of the pond would result in loss of foraging habitat, although it is expected that the restored habitat would also provide suitable foraging habitat as well. A more detailed explanation has been added to the Natural Environment Report.*

- ***Species at Risk scoring for B1 and B2 should be neutral***

    - ***AA Response:*** *It is felt that the rehabilitation of the dam and maintenance of the current pond is positive for Species at Risk and Rare Species within the direct area of the pond where species were observed (e.g. Snapping Turtle, Little Brown Myotis, Great Egret, Trumpeter Swan directly benefit from the current condition). Alternatives B1 and B2 have been scored as positive-neutral for Species at Risk and Rare Species.*

- **Alternative C option 1 and Alternative D option 1 – it is not clear if the dam is removed what the impact to the wetland and associated SWH. CVC staff expects the open water feature to be lost/significantly reduced however we would expect the rest of the wetland would remain, therefore, potential impacts to turtle overwintering and amphibian breeding may not be significant.**

    - ***AA Response:*** *Acknowledged – AA agrees with CVC that we would expect the rest of the wetland would remain and therefore the total extent of the wetland may not be significantly reduced. However, overwintering turtles require specific habitat conditions that may not persist if the dam and pond are removed. Therefore, it is anticipated, if the pond were removed Turtle overwintering habitat would be lost. The loss of a known habitat for an assumed or unknown habitat makes this a negative score.*

Rare or Important Landscape Features

- **Alternative C option 1 and Alternative D option 1 – due to the negative impacts of the on-line ponds and the long term maintenance CVC suggests moving the scoring to Negative (short-term, minor or potential).**

    - ***AA Response:*** *Rare and Important Landscape Features has been combined with the Provincially Significant Wetland criteria. Alternative C1 and D1 have been scored as negative-neutral.*

- **The Landscape Features scores for B1 and B2 should be neutral, like they are for SAR, SWH, and Rare Species.**

    - ***AA Response:*** *Rare and Important Landscape Features have been combined with the Provincially Significant Wetland criteria. Alternative B1 and B2 have been scored as neutural as any alterations will result only in a change to the type*

of PSW. Therefore, a PSW of some type is anticipated to remian in some form. This is different from SAR, SWH and Rare Species as an alteration to the existing conditions would directly impact these species of concern and their associated habitat.

PSW

- **It is unclear what the potential impacts are for alternative C1 and alternative D1. Will the wetland be filled in and an upland area created? If so, in order to separate options 1 from options 2 it should be clearly stated that option 1 there will be a loss of wetland (i.e. the area will be filled in and made into upland), while option 2 will recreate an open water wetland and associated functions. Therefore, option 1 will be negative (long-term extensive and definitive) while option 2 would be neutral or negative (short-term minor, potential).**

    - ***AA Response:*** *Acknowledged – For alternatives C1 and D1 it is expected that the area of wetland would not be filled in or converted to upland, instead the area would be restored as a non-open water wetland. Alternatives C1, C2, D1, and D2 are all scored as negative-neutral, as they are expected to have some impacts to the extent and quality of the wetland relative to what currently exists, but it is expected that the wetland would persist in some form.*

- **It is unclear if the extent of PSW may change under any of the options but the type of wetland may (marsh to conifer swamp) Is this an impact?**

    - ***AA Response:*** *Acknowledged – The specific changes to the wetland (i.e. marsh to conifer swamp) are not known. Alternatives C1, C2, D1, and D2 are all scored as negative-neutral, as they would be expected to have some impacts to the extent and quality of wetland relative to what currently exists, but is expected that the wetland would persist in some form.*

- **The PSW score for A should either be neutral since all the other natural heritage features scores are neutral or they should all be negative.**

    - ***AA Response:*** *All Natural Environment criteria scores are scored as negative, reflecting the potential catastrophic impacts of uncontroled dam failure.*

- **The PSW scores for C1 and D1 are likely different (maybe more negative) than C2 and D2.**

- ***AA Response:*** *Acknowledged – The scoring for Alternatives C1, C2, D1, and D2 are all scored as negative-neutral, as it would be expected to have some impacts to the extent and quality of wetland relative to what currently exists, but is expected that the wetland would persist in some form. The specific changes to the wetland (i.e. marsh to conifer swamp) are not known. The proposed open water or shallow water wetlands of the offline pond are not scored as high in the ranking.*

Economic Environment

- **Please clarify how the cost estimates were determined. For example, some of the alternatives mention that the cost of the eventual replacement of the bridge is included. Other future costs such as pond dredging and dam maintenance should also be included. As well, some of the costs of the environmental improvements may be able to be funded by external funding so the costs of the higher priced options may not be fully borne by the Town.**

    - ***TRTION Response:*** *Costs have been re-evaluated and updated to include additional future maintenance costs. Regardless of what party will be responsible for costs the Class EA must evaluate total costs equally. A cost breakdown will be included as part of the Project File Report.*

- **The scoring for the alternatives should be rethought, For example, is A the only positive since it has a cost of $0 or should the options be ranked by range or some other way? It seems incorrect that C1 and D2 are within $40,000 yet D2 is negative while C1 is negative-neutral. These should be the same scores.**

    - ***TRTION Response:*** *Costs have been re-evaluated and updated to include additional future maintenance costs.*

- **For regular operations and maintenance, Option A, B1 and B2 should mention the future cost of any maintenance of the on-line pond. The scores for all options should also be rethought (i.e. C1 and D1 should be positive, not negative).**

    - ***TRTION Response:*** *Costs have been re-evaluated and updated*

- **Liability scores for B1 and B2 should be the same as A.**

- ***TRTION Response:*** *Alternative B1 and B2 will be improving upon the existing infrastructure to meet present dam safety standards, thereby, reducing the risk and liability whereas Alternative A encompasses greater risk and liability as nothing will be completed in the way of improvements. Therefore, the evaluation has been scored according to this position.*

- **Liability scores for C2 and D2 should be positive or positive-neutral.**

    - ***TRTION Response:*** *Acknowledged, these have been adjusted to a positive-neutral score.*

Agency Regulations

- **CVC recommends that Agency Regulations is not an appropriate criterion because the scores would be the same for all alternatives except for A. If it is kept, Fisheries and Oceans Canada (DFO) should also be on the list of approval agencies.**

    - ***TRTION Response:*** *This criterion has been removed from the evaluation as permitting will occur after a design is submitted to the appropriate agencies. The selected Alternative must be permissible at the conceptual level as the purpose of the Class EA is to move forward with the selected Alternative by methods of its process. We ask that agencies make comment at this stage as to whether an Alternative will be permissible at this stage in order to rule any one Alternative out of the process.*

If you and further questions or comments, please feel free to contact the undersigned.

Yours truly,

ABOUD & ASSOCIATES INC.

Ryan Hamelin, M.Sc., Terrestrial and Wetland Ecologist

TRITON ENGINEERING SERVICES LIMITED

Chris Clark, M.A.Sc., P. Eng.

November 14, 2016

Chris Clark
Triton Engineering Services Limited
105 Queen Street West – Unit 14
Fergus, ON
N1M 1S6

Dear Mr. Clark:

Re: Station Street and Hillsburgh Dam and Bridge Class Environmental Study
Updated Ranking of Alternatives
Town of Erin

Credit Valley Conservation (CVC) staff have reviewed the revised scoring of the Environmental Assessment (EA) alternatives along with the response letters to previous CVC comments received on October 12, 2016. CVC staff note that the review was completed in the absence of the required hydrology and hydraulic analysis or an update to the Natural Environment Report received May 6, 2016. These studies provide justification for how the scores for each of the criteria were determined. Without them we are not able to fully comment on the options and be in a position to support the preferred alternative. CVC **strongly recommends** that draft of the Project File is circulated for review prior to the conclusion of the EA. CVC makes this recommendation when reviewing any EA to ensure that when the Project File is filed the EA has satisfactorily covered all areas of concern, is supported by acceptable technical information and the preferred alternative will meet CVC's regulatory requirements to allow for the issuance of a permit pursuant to Ontario Regulation 160/06 when the time comes. Our specific comments follow.

Ranking and Scoring

Hydrology and Hydraulics

- Each option in Alternatives C and D result in reduced flooding or significantly reduced flooding (Alternative D) and is scored negative whereas Alternative B has negligible impacts to flooding but is score positive. Please explain.
- Explain why the scores for Alternatives C and D are the same when Alternative D proposes to meet the regulatory requirements for both the dam and the bridge but Alternative C only proposes to meet the requirements for the dam.
- CVC staff believe that Alternative D (both options) should be scored as positive as it meets the regulatory requirements and would result in significantly decreased flooding.
- CVC staff are of the opinion that Alternative C (both options) should be scored neutral or positive-neutral.

Sediment Transport

- Alternative B Options 1 and 2 should be negative rather than negative-neutral since the dam is still present and sediment transport is no better than the do nothing option.
- Dredging could also be done for the do nothing option but it doesn't improve sediment transport.

Species at Risk/Rare Species

- Alternative B Options 1 and 2 should be neutral rather than positive-neutral since no changes are anticipated.

- Alternative C Option 2 and Alternative D Option 2 should be minor-negative rather than neutral since there will be changes to the wetland.

Significant Wildlife Habitat

- Alternative B Options 1 and 2 should be neutral rather than positive-neutral since no changes are anticipated.
- Alternative C Option 2 and Alternative D Option 2 should be negative-neutral rather than neutral since there will be changes to the wetland.

Regular Operations and Maintenance

- It is not understood why there will be no bridge maintenance required for Alternatives B1, Alternatives D1 and D2 as there is a bridge proposed and the other options show this as required.

Response to CVC Comments

Many of the responses provided in the response letter state that the studies have been updated or sections added to address these concerns. Since these studies were not provided for review, CVC staff cannot confirm whether these were addressed. Comments regarding items described as being beyond the scope of the EA are provided below.

Erosion

At a minimum the final report must discuss potential erosion impacts. For the options to keep the pond, an erosion analysis may not be required. For the options which propose to remove the pond there needs to be discussion on the potential implications of creating a new channel while respecting the existing erosion hazard limits and natural processes (meandering). An option which results in an increase in the erosion hazard limit or the creation of an erosion hazard where one did not previously exist would not be supported or be able to be approved by CVC. Additional studies may be required at detailed design.

Impacts to the Provincially Significant Wetland (PSW)

If not quantifiable, impacts to the PSW for each option are to be discussed in the final report and not just represented within the scoring table.

Conclusion

CVC staff are of the opinion that Alternative B option 1, which has been selected as the preferred alternative is not sufficiently different than the score for Alternative D option 1 to be clearly preferred. At this time, CVC staff do not consider any alternative as being acceptable due to the outstanding questions with the assessment and the absence of the supporting technical information. CVC staff look forward to continue working with Triton Engineering and the Town of Erin to address outstanding questions on the EA.

I trust that these comments will be of assistance. Please do not hesitate to contact the undersigned at (905) 670-1615 ext. 406 should you have any questions.

Yours truly,

Tyler Slaght
Regulations Officer

cc: **Town of Erin Attn: Greg Delfosse** **MNRF Attn: Tara Mckenna**

Chris Clark

From: Chris Clark
Sent: November-21-16 3:20 PM
To: 'Slaght, Tyler'
Cc: Greg Delfosse (Greg.Delfosse@erin.ca); Paul Ziegler
Subject: RE: CVC Comments - Revised Ranking for the Hillsburgh Dam EA

Hi Tyler,

Thanks for sending the CVC comments. These comments will be considered and included within the Project File Report.

Regards,

Chris Clark, M.A.Sc., P.Eng.

Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 • Fax - (519) 843-1943 • www.tritoneng.on.ca
Cell – (519) 993-7918

From: Slaght, Tyler [mailto:tslaght@creditvalleyca.ca]
Sent: November-15-16 9:06 AM
To: Chris Clark
Cc: Greg Delfosse (Greg.Delfosse@erin.ca); McKenna, Tara (MNRF)
Subject: CVC Comments - Revised Ranking for the Hillsburgh Dam EA

Hi Chris,

Please find attached CVC comments regarding the revised ranking.

Please do not hesitate to contact me if you have any questions.

Regards,

Tyler Slaght, RPP
Regulations Officer
Credit Valley Conservation
905.670.1615 ext 406 | 1.800.668.5557
tslaght@creditvalleyca.ca | creditvalleyca.ca

Ministry of Natural Resources and Forestry

Ministère des Richesses naturelles et des Forêts

Guelph District
1 Stone Road West
Guelph, Ontario
N1G 4Y2

Telephone: (519) 826-4955
Facsimile: (519) 826-4929

Ontario

June 30, 2016

Chris Clark
Triton Engineering Services Limited
105 Queen Street West, Unit 14
Fergus, ON
N1M 1S6

Re: Hillsburgh Dam and Bridge Environmental Assessment – Draft Natural Environment Report, March 2016 & Preliminary Comparison and Ranking of Alternatives – Town of Erin, County of Wellington – MNRF Comments

Dear Mr. Clark,

The Ministry of Natural Resources and Forestry (MNRF) Guelph District Office can confirm receipt of the Draft Hillsburgh Dam Natural Environment (NE) Report (dated March 15, 2016). The NE Report has been completed in accordance with a Municipal Class Environmental Assessment (EA) Schedule B Project under the *Environmental Assessment Act.* It is understood based on the Town of Erin's website, that the project team has identified option B-1 (rehabilitate Hillsburgh Dam and Reconstruct Station Street Bridge) as the preliminary preferred alternative, at this time. The MNRF has reviewed the NE Report, as well as the Preliminary Comparison and Ranking of Alternatives matrix available on the Town's website, and can offer the EA project team the following comments. In addition, we have also included general information on the legislated permit process for the *Lakes and Rivers Improvement Act* (LRIA).

MNRF understands that the pond's outlet pipe within the Hillsburgh Dam failed in 2011, requiring emergency repairs as an immediate fix to the problem. MNRF approved the emergency works under the LRIA in 2012. A condition of this approval, however, was for the Town of Erin to apply for an authorization under the LRIA for a permanent solution to the dam. As such, the Town of Erin is undertaking a Municipal Class EA Schedule B to identify an appropriate solution for both the dam and Station Street Bridge before seeking approval under the LRIA.

MNRF Comments:

Natural Environment Report

- **Provincially Significant Wetland**
  MNRF staff note that the project team reviewed the accuracy of the West Credit River Wetland Complex Provincially Significant Wetland (PSW) boundaries. It is understood that a few minor boundary revisions to the PSW were identified based on field survey work and ortho-photograph interpretation by the project team. MNRF would appreciate the opportunity to review the proposed wetland mapping to determine if updates to the provincial wetland mapping are required.

- **Little Brown Myotis**
  As addressed in the NE Report, MNRF staff have noted the presence of maternal roost habitat for Little Brown Myotis adjacent to the study area, and the species has been observed flying towards the Hillsburgh Pond. Little Brown Myotis is listed as Endangered under the *Endangered Species Act* (ESA), and the species receives both individual and general habitat protection under the Act.

  MNRF staff note that an authorization under the ESA may be required if the chosen alternative is anticipated to damage the habitat of Little Brown Myotis. It is recommended that the project team consult with MNRF once an option has been confirmed to determine whether targeted surveys will be required in the project area. This will help to inform whether an ESA authorization will be required.

- **Fish Habitat**
  MNRF staff note that the NE Report does not mention the two small tributaries that drain into the west side of the Hillsburgh Pond. MNRF staff recommend including these tributaries in the report to ensure all watercourses are considered from a natural heritage perspective.

  MNRF can provide additional observations for Section 3.7 and Figure 5 of the NE Report: Brown Trout was observed spawning in aquatic habitat segment 5 in the fall of 2013, and Brook Trout have been confirmed spawning in aquatic habitat segment 4 by the Credit Valley Conservation (CVC). It is recommended that the report be updated to include this fisheries information.

- **Snapping Turtle**
  A juvenile Snapping Turtle was observed by MNRF staff on the Station Street berm at Hillsburgh Pond 17 (UTM 569016 4848536) on September 11, 2013. In addition, MNRF staff observed young-of-the-year Snapping Turtles in the adjacent pond on October 2, 2013. It is recommended that Section 3.4.5 of the NE Report be updated to include this information.

- **Other MNRF Observations**
  MNRF staff note that Trumpeter Swans have also been seen on the Rudd Pond.

- **Landscape Level Plans**
  There are a number of plans that include recommendations to remove the dams in the West Credit River watershed. These include:

  - The Credit River Fisheries Management Plan (MNRF and CVC, 2002) provides a wide range of recommendations to protect, enhance and rehabilitate the aquatic ecosystem of the Credit River watershed. The removal of the Hillsburgh Dam would deliver on the priority to remove or mitigate the impacts of dams on the West Credit River. MNRF staff recommends that the NE Report include a discussion regarding how the dam removal options would reduce negative impacts to watercourse and improve aquatic habitat, supporting this management plan.

- The West Credit River Subwatershed Study Background Study and Impact Assessment (1998, 2001), by the CVC is the management plan for the West Credit River. This plan identifies the current conditions of watershed health and identifies current and future impacts. The removal of the Hillsburgh Dam is supported by this plan, in order to reduce the impacts of dams on the fish community. MNRF recommends that the project team include a reference to this background study in the NE Report, including a discussion on how removing the Hillsburgh Dam would improve the fish community.

Preliminary Comparison and Ranking of Alternatives

MNRF staff have had the opportunity to review the Preliminary Comparison and Ranking Alternatives matrix available on the Town of Erin's website. It is recommended that the ranking matrix provide a more fulsome review and examination of criteria, in order to more effectively evaluate the alternative options being presented for the Hillsburgh Dam and Station Street Bridge. The following comments reflect our recommendations that could be incorporated into an updated ranking matrix for the Environmental Study Report (ESR).

- It is recommended that the titles under Alternatives "C" and "D" - Option 2, include a note that these options include decommissioning the dam.

- For the Sediment Transport criteria, it is recommended that the weighting should be "medium" as sediment transport is very important for the long term health of the system. As well, only the negative effects of sediment transport seem to be considered here. The existing dam disrupts the normal transport of sediment through the system. It is recommended that Alternatives "C" and "D" should score a positive value of "8" as the dam removal alternatives will restore sediment transport for the long-term. There may be some short-term management of sediment during construction, but there will be a long-term, positive benefit to sediment transport as a result of removing the dam.

- We have reviewed the information included in the Hydrogeology criteria and it is our opinion that this is a relatively minor issue that does not appear to warrant being a separate set of criteria. If these criteria are included in the ESR, it is recommended that the ESR includes the data that supports this point. Staff are not aware of instances when the lowering of the pond has resulted in lower water levels of dug wells and private ponds.

- Removing the dam would restore the natural hydrogeology of the area. Thus the Hydrogeology criteria should be redefined and the Options under Alternative C and D (dam decommissioned) should be given a "Positive" score (4).

- Under the Natural Environment section, it is recommended that the project team consider adding criteria that reflects the "Ecological Restoration" of the natural system.

- Many of the criteria in the Natural Environment section overlap synergistically resulting in double scoring. For example, many of the species at risk or rare species use the wetlands or significant

wildlife habitat. As a result, staff recommends that the Species at Risk and Rare Species criteria be combined.

Similarly, the Landscape Features criteria should be removed or combined with other criteria, where it is already considered, such as Provincially Significant Wetlands and / or Significant Wildlife Habitat.

- MNRF and CVC worked with partners to establish the fisheries management objectives for the Credit River (Credit River Fisheries Management Plan, 2002. Queen's Printer for Ontario. ISBN 0-7794-3183-9). Through that process, the West Credit River was identified as supporting a coldwater fish community. The Fisheries Management Plan notes that the dams in Hillsburgh have known negative impacts and they have been identified for mitigation or removal. It is through that plan that the impacts to the fishery should be considered. As such, it is recommended that the Alternatives and Options that retain a dam under the Fish Criteria be considered a negative impact on fisheries resources and therefore, these options should score "negative" (5).

- Under the Provincially Significant Wetlands criteria, the potential changes to hydrology should be the same if the bridge is reconstructed or rehabilitated (Alternative B), therefore it is recommended that options 1 and 2 be scored the same at "6".

- Under the Public Safety criteria, MNRF recommends changing the ranking for Alternative "C", Option 1 from "10" to "11" or "12," as the danger of having a pond is gone, and the road will be rehabilitated. It is anticipated that removing the pond and dam will reduce the public safety issues. In addition, it is recommended that Alternative "B", Option 1 should score lower than Alternative "C", Option 1 since there is greater risk to public safety as a result of keeping the dam and online pond (e.g. dam failure).

- It is recommended that the economic analysis shown in Capital Construction for Alternative "B" include the cost of the eventual decommissioning of the dam, as it should reflect the full life-cycle costs of rehabilitating the dam. As a result, we anticipate that Alternatives "C" and "D" are more economical and sustainable over the long-term. There appears to be potential for the cost estimates of removing the dam, building the berm for an offline pond, and site restoration may be higher than expected. MNRF staff recommend including a cost breakdown in the ESR that shows how the totals in the ranking table were derived.

- Under the Regular Operations and Maintenance criteria, we recommend that the project team consider raising the ranking of Alternative "C", Option 1 from "10" to "11". The short-term operation and maintenance costs will only be attributed to the rehabilitated bridge (not the dam and bridge – similar split seen under Alternative "B"). As well, the costs associated with keeping the dam and the online pond functional with periodic maintenance, such as dredging, do not appear to have been considered.

- Under the Economic Feasibility/Liability criteria, only the scenario of "dam failure" appears to be considered. In Alternatives "C" and "D", where the dam is to be removed, it is recommended that these Options should score "12".

Lakes and Rivers Improvement Act

Ministry approval is required to make alterations, improvements or repairs to a dam that may affect the structural integrity or safety of the dam, or that may affect the waters or natural resources. Some works (described in the LRIA S. 16 technical bulletin attached) have been predetermined to have minimal or no effect on the dam's structural integrity or safety, hydraulic capacity, public safety, the waters or natural resources. These works would not require Ministry approval as long as the works adhere to Ministry standards.

If proponents are uncertain if LRIA approval is required, proponents should contact the Ministry to seek clarification as required. The proponent's design engineer must provide complete information to the Ministry for the proposed works to be reviewed in detail. Submission requirements are described in the attached LRIA S. 16 technical bulletin.

Proponents are responsible for ensuring that all work undertaken meets applicable Ministry standards and other professional guidelines and codes.

Closing

The Ministry appreciates the opportunity to review and provide comments on the Hillsburgh Dam and Bridge NE Report, as well as the Preliminary Comparison and Ranking of Alternatives matrix available on the Town's website.

It is understood that the NE Report concludes that the most beneficial alternatives from a natural environment perspective include the options that would decommission the dam and create an offline pond. The MNRF supports this conclusion. However, we recommend that a stronger analysis be included in the report and the ranking matrix to demonstrate the long-term environmental benefits of decommissioning the dam and creating an offline pond. Such benefits include improvements to aquatic ecology and the coldwater fish community, which are supported by the management plan and subwatershed study noted in the above comments. A re-evaluation of the ranking matrix could also result in Option "2" of alternatives "C" and "D" scoring higher in the overall rankings.

If the dam is to be removed, with the option of creating an offline pond, MNRF staff would work with the Town of Erin and other agencies and partners to assist with the process. This partnership would include in-kind contributions to assist with fund raising, permit applications, project design, tendering and construction. This same approach has been successful at other locations.

The MNRF would appreciate a response from the EA project team on the comments above. Please note that staff may have additional comments on the NE Report if updated reports are submitted. Staff

would also appreciate the opportunity to comment on the draft ESR. This will enable us to identify any potential issues early in the EA process.

If further comment or clarification is required please contact the undersigned.

Regards,

Tara McKenna, District Planner
Ministry of Natural Resources and Forestry, Guelph District
1 Stone Road West
Guelph, ON, N1G 4Y2
Phone: (519) 826-4912
Email: tara.mckenna@ontario.ca

cc: Ian Thornton, MNRF
Al Murray, MNRF
Ken Cornelisse, MNRF
Art Timmerman, MNRF
Melinda Thompson, MNRF
Elizabeth Reimer, MNRF
Doug Ryan, MNRF
Tyler Slaght, CVC

RESPONSE TO MNRF COMMENTS: Dated June 30, 2016
Hillsburgh Dam and Bridge Environmental Assessment

Comments regarding the Hillsburgh Dam and Bridge Environmental Assessment and Draft Natural Heritage Report were received from the MNRF on June 30, 2016. Below are the responses to comments relating to the Draft Natural Heritage Report (Dated March 15, 2016).

Natural Environment Report

- **Provincially Significant Wetlands**
    - **MNRF would appreciate the opportunity to review the proposed wetland mapping to determine if the updates to the provided wetland mapping are required.**
        - ***AA Response:*** *The entire wetland boundary was not re-delineated as part of the Natural Environment Report, but boundary was reviewed on the ground against existing wetland mapping. Only minor discrepancies were identified between wetland mapping provided by Land Information Ontario and observed wetland boundary. The minor differences between the mapped and actual wetland boundaries would not alter the analysis or scoring of EA options, it was therefore felt that a full review and update of the entire wetland boundary was not necessary. AA would be willing to review areas of minor discrepancies with the MNRF or to complete detailed wetland boundary delineation, if required.*
- **Little Brow Myotis**
    - **MNRF Staff note that an authorization under the ESA may be required if the chosen alternative is anticipated to damage the habitat of the Little Brown Myotis.**
        - ***AA Response:*** *AA will update the report to reflect the fact that authorization under the ESA may be required if a selected option has the potential to negatively impact Little Brown Myotis habitat.*

- **Fish Habitat**

    - **MNRF Staff note that the NE Report does not mention two small tributaries that drain into the west side of the Hillsburgh pond. MNRF recommend including these tributaries in the report to ensure all watercourses are considered from a natural heritage perspective.**

        - ***AA Response:*** *These watercourses will be ortho-interpreted and added to the figure. Any available background resources available on these tributaries will be incorporated into the report.*

    - **MNRF can provide additional observations for Section 3.7 and Figure 5 of the NE report: Brown Trout was observed spawning in aquatic habitat segment 5 in the fall of 2013, and Brook Trout have been confirmed spawning in aquatic habitat segment 4 by CVC. It is recommended that the report be updated to include this fisheries information.**

        - ***AA Response:*** *Observations have been incorporated into Appendix 20 and Figure 5.*

- **Snapping Turtle**

    - **A juvenile Snapping Turtle was observed by MNRF staff on the Station Street berm at Hillsburgh Pond 17 (UTM 569016 4848536) on September 11, 2013. In addition, MNRF staff observed young of-the-year Snapping Turtles in the adjacent pond on October 2, 2013. It is recommended that Section 3.4.5 of the NE Report be updated to include this information.**

        - ***AA Response:*** *Observation will be added to report under background data and SAR.*

- **Other MNRF Observations**

    - **MNRF Staff note Trumpeter Swans have been observed on the Rudd pond.**

        - ***AA Response:*** *Observation will be added to report under background data.*

- **Landscape Level Plan**

    - **There are a number of plans that include the recommendations to remove the dams on the west credit river: These include**
        1) The Credit River Fisheries Management Plan
        2) The West Credit River Subwatershed Study Background Study and Impact Study (1998 to 2001)

      MNRF recommend that these reports be referenced and that a section be included in the NE report that discusses how removing the Hillsburgh Dam would improve the fish community.

        - ***AA Response:*** *Section 1.4 of the Draft Natural Heritage Report discusses the Credit River Fisheries Management plan and discusses recommendations for dam removal or mitigation to improve fish communities.*
        - ***AA Response:*** *AA has not reviewed the West Credit River Subwatershed Study Background Study and Impact Study (1998 to 2001). If a copy is provided, a reference to the report and summary of finding and recommendations can be included in the NE report along with a section discussing the impacts of the dam.*

Preliminary Comparison of Ranking of Alternatives

- **It is recommended that the titles under Alternatives C and D – Option 2, include a note that these options include decommissioning the dam.**

    - ***Triton Response:*** *Acknowledged, titles have been adjusted to include dam decommissioning*

- **For the Sediment Transport criteria, it is recommended that the weighting should be "medium" as sediment transport is very important for the long term health of the system. As well, only the negative effects of sediment transport seem to be considered here. The existing dam disrupts the normal transport of sediment through the system. It is recommended that Alternatives "C" and "D" should score a positive value of "8" as the dam removal alternatives will restore sediment transport for the long-term. There may be some short-term management of sediment during construction, but there will be a long-term, positive benefit to sediment transport as a result of removing the dam.**

    - ***Triton Response:*** *Acknowledged, weighting has been adjusted to "medium" and Alternative C and D have been adjusted to positive (+4).*

- **We have reviewed the information included in the <u>Hydrogeology</u> criteria and it is our opinion that this is a relatively minor issue that does not appear to warrant being a separate set of criteria. If these criteria are included in the ESR, it is recommended that the ESR includes the data that supports this point. Staff is not aware of instances when the lowering of the pond has resulted in lower water levels of dug wells and private ponds.**

    - ***Triton Response:*** *Acknowledged, data relating to the project areas hydrogeology has since been included and will be added as part of the Project File Report.*

- **Removing the dam would restore the natural hydrogeology of the area. Thus the <u>Hydrogeology</u> criteria should be redefined and the Options under Alternative C and D (dam decommissioned) should be given a "Positive" score (4).**

    - ***Triton Response:*** *Data relating to the project areas hydrogeology has since been included and will be added as part of the Project File Report. The conclusion of the report states that there are relatively no impacts to shallow dug wells provided sediment is not removed in all scenarios. Therefore, the natural hydrogeology will remain neutral as there should be no change. Alternative B1 and B2 are scored negative-neutral as there could be potential for water quality impacts once the pond is dredged. In order to prove these assumptions, further monitoring will be required.*

- **Under the Natural Environment Section, it is recommended that the project team consider adding criteria that reflects the "Ecological Restoration' of the natural system**

    - ***AA Response:*** *Ecological Restoration of the natural system has been incorporated within each criterion listed under the NE section of the evaluation matrix.*

- **Many of the criteria of the NE section overlap synergistically resulting in double scoring.**

    - ***AA Response:*** *Scoring criteria has been adjusted to eliminate double scoring.*

- **MNRF and CVC worked with partners to establish the fisheries management objectives for the Credit River (Credit River Fisheries Management Plan, 2002. Queen's Printer for Ontario. ISBN 0-7794-3183-9). Through that process, the West Credit River was identified as supporting a coldwater fish community. The Fisheries Management Plan notes that the dams in Hillsburgh have known negative impacts and they have been identified for mitigation or removal. It is through that plan that the impacts to the fishery should be considered. As such, it is recommended that the Alternatives and Options that retain a dam under the Fish Criteria be considered a negative impact on fisheries resources and therefore, these options should score "negative" (5).**

    - ***AA Response:*** *Scoring has been updated to reflect the "negative" impacts of the dam on fisheries resources.*

- **Under the Provincially Significant Wetlands criteria, the potential changes to hydrology should be the same if the bridge is reconstructed or rehabilitated (Alternative B), therefore it is recommended that options 1 and 2 be scored the same at "6".**

    - ***AA Response:*** *Scoring has been updated so that the PSW criteria for Alternative B Option 1 and 2 is scored the same. This criterion is scored as neutral as no long term impacts are expected to the wetland from rehabilitating the Dam.*

- **Under the <u>Public Safety</u> criteria, MNRF recommends changing the ranking for Alternative "C", Option 1 from "10" to "11" or "12" as the danger of having a pond is gone, and the road will be rehabilitated. It is anticipated that removing the pond and dam will reduce the public safety issues. In addition, it is recommended that Alternative "B", Option 1 should score lower than Alternative "C", Option 1 since there is greater risk to public safety as a result of keeping the dam and online pond (e.g. dam failure).**

    - ***Triton Response:*** *Scoring has been updated to reflect Alternative D1 as being positive as all aspects of public safety (bridge and dam) are being mitigated while B1, C1, C2 and D2 are positive-neutral as only one aspect of public safety is being improved. A and B2 will result in little to no improvements to public safety and are scored accordingly.*

- **It is recommended that the economic analysis shown in <u>Capital Construction</u> for Alternative "B" include the cost of the eventual decommissioning of the dam, as it should reflect the full life-cycle cost of rehabilitating the dam. As a result, we anticipate that Alternatives "C" and "D" are more economical and sustainable over the long-term. There appears to be potential for the cost estimates of removing the dam, building the berm for an offline pond, and site restoration may be higher than expected. MNRF staff recommends including a cost breakdown in the ESR that shows how the totals in the ranking table were derived.**

    - ***Triton Response:*** *Acknowledged, the cost for eventual dam removal has been added to Alt. B1 and B2 and Capital Construction criteria scoring has been adjusted accordingly. A cost breakdown will be included as part of the Project File Report.*

- **Under the <u>Regular Operations and Maintenance</u> criteria, we recommend that the project team consider raising the ranking of Alternative "C", Option 1 from "10" to "11". The short-term operation and maintenance costs will only be attributed to the rehabilitated bridge (not the dam and bridge – similar split seen under Alternative "B"). As well, the costs associated with keeping the dam and the online pond functional with periodic maintenance, such as dredging; do not appear to have been considered.**

    - ***Triton Response:*** *Acknowledged, the Regular Operations and Maintenance criteria scores have been revised to include these factors. A cost breakdown will be included as part of the Project File Report.*

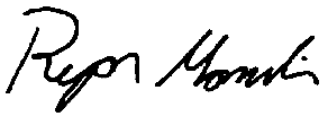
- **Under the <u>Economic Feasibility/Liability</u> criteria, only the scenario of "dam failure" appears to be considered. In Alternative "C" and "D", where the dam is to be removed, it is recommended that these Options should score "12".**

    - ***Triton Response:*** *For the purposes of scoring the ultimate scenario which affects the Economic Liability criteria is "dam failure". Scoring has been adjusted to show D1 as being the most positive. C1, C2 and D2 still contain some liability with either a rehabilitated bridge structure or the offline pond structure.*

If you and further questions or comments, please feel free to contact the undersigned.

Yours truly,

ABOUD & ASSOCIATES INC.



Ryan Hamelin, M.Sc., Terrestrial and Wetland Ecologist

TRITON ENGINEERING SERVICES LIMITED

Chris Clark, M.A.Sc., P. Eng.

Ministry of Natural Resources and Forestry

Ministère des Richesses naturelles et des Forêts

Guelph District
1 Stone Road West
Guelph, Ontario
N1G 4Y2

Telephone: (519) 826-4955
Facsimile: (519) 826-4929

Ontario

November 9, 2016

Chris Clark
Triton Engineering Services Limited
105 Queen Street West, Unit 14
Fergus, ON
N1M 1S6

Re: Hillsburgh Dam and Bridge Environmental Assessment – Revised Comparison and Ranking of Alternatives – Town of Erin, County of Wellington – MNRF Comments

Dear Mr. Clark,

The Ministry of Natural Resources and Forestry (MNRF) Guelph District Office has had the opportunity to review the revised Comparison and Ranking of Alternatives matrix in support of the Municipal Class Environmental Assessment (EA) for the Hillsburgh Dam and Station Street Bridge in the Town of Erin. MNRF staff can offer the EA project team the following comments.

MNRF Recent Involvement to Date

MNRF provided comments to the project team in a letter dated June 30, 2016, which focused on a review of the Draft Hillsburgh Dam Natural Environment Report (dated March 15, 2016) as well as the Preliminary Comparison and Ranking of Alternatives matrix. MNRF provided detailed comments on the ranking matrix, as well as recommendations related to natural heritage features, species at risk, and the *Lakes and Rivers Improvement Act*. MNRF also met with the EA project team on July 21 and August 22, 2016 to discuss agency recommendations on the reporting and comparison matrix.

MNRF Comments:

It is appreciated that the project team has revised the Comparison and Ranking of Alternatives matrix to provide a more fulsome review and examination of criteria, in order to more effectively evaluate the alternative options being presented for the Hillsburgh Dam and Station Street Bridge. The following comments reflect our recommendations that could be incorporated into an updated ranking matrix to more appropriately represent the alternatives.

- **Hydrology and Hydraulics:**
  Alternative B – Option 1 received a score of 6, while Alternative C - Options 1 & 2 and Alternative D – Options 1 & 2 scored "-3". If Alternative B – Option 1 includes the reconstruction of the bridge, we anticipate that Alternative C or D, Options 1 & 2 would have similar hydraulics and hydrology, if the dam is removed. MNRF staff anticipate that removing the dam would re-establish historical hydraulic and hydrology conditions. We understand the removal of the dam (Alternatives C and D) will reduce the risk of uncontrolled dam failure, and represents a long-term solution. In addition,

the reconstruction of the bridge provides the best alternative for managing hydraulics and hydrology. Based on this understanding of the scoring matrix, MNRF staff recommend that the scores for this criterion could be -6, 0, -6, 0, 0, 6, 6 (respectively, based on the order of alternatives in the matrix).

- **Species at Risk (SAR) Rare Species:**
  Alternative B – Options 1 & 2 have a score of "3". Since there are no anticipated long-term impacts, we would recommend that the score could be "0" (neutral).

- **Significant Wildlife Habitat:**
  Alternative B – Options 1 & 2 currently score "2". As Alternative B – Options 1 & 2 would not alter the habitat, MNRF staff recommend that the scoring could be "0" (neutral).

- **Provincially Significant Wetlands:**
  - Alternative C – Option 1 (no pond) should have a lower score than Alternative C – Option 2 (offline pond), such as "-2" and "0", respectively.
  - Alternative D – Option 1 (no pond) should have a lower score than Alternative D – Option 2 (offline pond), such as "-2" and "0", respectively.

- **Cultural Heritage:**
  - MNRF staff recommends considering that Alternative C – Options 1 & 2 could score differently (-3, 0, respectively) since the offline pond offers some benefit to retaining the cultural heritage feature.
  - MNRF staff recommends considering that Alternative D – Options 1 & 2 could score differently (-3, 0, respectively) since the offline pond offers some benefit to retaining the cultural heritage feature.

- **Economic Liability:**
  The text in "Summary of Weighted / Measured Criteria" should include the words "and bridge" (not just the "dam").

Closing

The Ministry appreciates the opportunity to review and provide comments on the revised Comparison and Ranking of Alternatives for the Hillsburgh Dam and Bridge EA. MNRF would also appreciate an opportunity to provide comments on the upcoming Project File Report, once it becomes available.

As noted in our previous correspondence, if the dam is to be removed, with the option of creating an offline pond, MNRF staff would work with the Town of Erin and other agencies and partners to assist with the process. This partnership would include in-kind contributions to assist with fund raising, permit applications, project design, tendering and construction. This same approach has been successful at other locations.

If further comment or clarification is required please contact the undersigned.

Regards,

Tara McKenna, District Planner
Ministry of Natural Resources and Forestry, Guelph District
1 Stone Road West
Guelph, ON, N1G 4Y2
Phone: (519) 826-4912
Email: tara.mckenna@ontario.ca

cc: Ian Thornton, MNRF
Al Murray, MNRF
Ken Cornelisse, MNRF
Art Timmerman, MNRF
Doug Ryan, MNRF
Tyler Slaght, CVC

Chris Clark

From: Chris Clark
Sent: November-21-16 3:21 PM
To: 'McKenna, Tara (MNRF)'
Cc: Thornton, Ian (MNRF); Murray, Al (MNRF); Cornelisse, Ken (MNRF); Timmerman, Art (MNRF); Ryan, Doug (MNRF); Paul Ziegler
Subject: RE: Hillsburgh Dam EA - MNRF comments on revised Comparison and Ranking of Alternatives

Hi Tara,

Thank-you for sending MNRF comments. These comments will be considered and included as part of the Project File Report.

Regards,

Chris Clark, M.A.Sc., P.Eng.

Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
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Cell – (519) 993-7918

From: McKenna, Tara (MNRF) [mailto:Tara.McKenna@ontario.ca]
Sent: November-09-16 3:09 PM
To: Chris Clark
Cc: Thornton, Ian (MNRF); Murray, Al (MNRF); Cornelisse, Ken (MNRF); Timmerman, Art (MNRF); Ryan, Doug (MNRF); Slaght, Tyler
Subject: Hillsburgh Dam EA - MNRF comments on revised Comparison and Ranking of Alternatives

Hi Chris,

Thank you for the opportunity to review the revised Comparison and Ranking of Alternatives for the Hillsburgh Dam and Bridge Environmental Assessment. The Ministry's comments are attached.

Should you have any questions, do not hesitate to contact me.

Regards,

Tara

Tara McKenna, M.PI.
District Planner
Ministry of Natural Resources and Forestry, Guelph District
1 Stone Road West
Guelph ON, N1G 4Y2
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APPENDIX F-2

Public Comments

COUNTY OF WELLINGTON

PLANNING AND DEVELOPMENT DEPARTMENT
GARY A. COUSINS, M.C.I.P., DIRECTOR
T 519.837.2600
T 1.800.663.0750
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ADMINISTRATION CENTRE
74 WOOLWICH STREET
GUELPH ON N1H 3T9

July 26, 2016

To: Paul Ziegler, P.Eng
Triton Engineering

From: Gary Cousins, MCIP, RPP

Subject: Hillsburgh Dam and Bridge
Municipal Class EA

Thank you for the recent meeting with MNR, CVC and the Town of Erin. It provided County representatives with a better understanding of the options and the concerns of the agencies particularly around the fishery resource.

From an environmental perspective, we understand there are both advantages and disadvantages that need to be weighed when examining options to allow the river to resume a natural course or to create an on line pond. From a social/cultural perspective, retaining the pond in its current form is clearly preferred given that has been the norm for over 100 years.

The County of Wellington strongly prefers rehabilitating the dam and reconstructing the bridge in a manner that retains the pond in its current form. The County, as owner of the pond, does not support the creation of an on line pond or having the river revert to a natural course.

The County is willing to discuss reasonable means of improving the fishery while maintaining the pond.

Regards,

Gary Cousins

Gary Cousins, MCIP, RPP
Director of Planning and Development

cc: Warden George Bridge
CAO Scott Wilson

379 Ronka Road
Worthington, ON P0M3H0
LindaH@OntarioRiversAlliance.ca
OntarioRiversAlliance.ca

20 June 2016

Dina Lundy, Clerk
Town of Erin
5684 Trafalgar Road
Hillsburgh, ON
N0B1Z0
By Email: Dina.Lundy@erin.ca

Paul Ziegler, C.E.T.
Project Manager
Triton Engineering Services Limited
105 Queen Street West, Unit 114,
Fergus, ON
N1M1S6
By Email: PZiegler@tritoneng.on.ca

Re: Hillsburgh Dam and Bridge, Upper West Credit River, Hillsburgh

Dear Sirs:

Ontario Rivers Alliance (ORA) is a Not-for-Profit grassroots organization acting as a voice for several stewardships, organizations, and private and First Nation citizens who have come together to protect, conserve and restore healthy river ecosystems in Ontario.

ORA is pleased to comment on the options being considered by the Town of Erin (Town) for the Hillsburgh Dam and Bridge located along Station Street, approximately 150m west of Trafalgar Road, crossing the Upper West Credit River, in Hillsburgh. The Town has initiated a Municipal Class B Environmental Assessment to review the options and identify the preferred alternatives to both the deterioration of the bridge and a permanent solution for the dam.

ORA recommends either of Alternatives C or D, Option 2, offered in the Preliminary Comparison and Ranking of Alternatives chart for the following reasons:

Coldwater Brook Trout Fishery

The West Credit River is a headwaters tributary of the Credit River, and is highly valued as a coldwater brook trout fishery. Ontario fisheries contribute significantly to the economic and social fabric of the province, and bring in approximately $2.2 billion annually to the Ontario

economy. Coldwater species are still widespread across Ontario ranges but some local populations of Brook Trout are now extirpated, and others have suffered declines.[1]

ORA has partnered with Trout Unlimited Canada, Credit Valley Conservation, the Ontario Ministry of Natural Resources and Forestry, and the Izaak Walton Fly Fishing Club, on a project to decommission the Rudd Dam, just downstream of the Hillsburgh Dam. This 2-year project will remove a large portion of the earthen dam and rehabilitate 5,065 feet (1,544m) of unimpeded access to a high quality coldwater brook trout habitat. The West Credit River is important habitat for Brook Trout in the Credit River due to its ample groundwater discharge. This Project is part of the implementation of the Credit River Fisheries Management Plan (OMNR and CVC, 2002), a larger multi-species ecosystem-based recovery initiative.

The impact of a dam on a free flowing stream imposes changes to the basic hydrological characteristics of the watercourse. The velocity of the stream is reduced and subsequent changes occur in temperature, turbidity, sediment transport, stream ecology, and water quality. These modifications affect fish and other aquatic fauna directly and indirectly to varying degrees, depending upon the species.[2]

The brook trout fishery on the West Credit River has been significantly impacted through thermal warming by upstream dams that have blocked access to important habitat and spawning areas, making it less suitable for a cold-water fishery.

Decommissioning of the Hillsburgh Dam would improve water quality and temperature, and significantly expand the West Credit River coldwater fishery habitat.

Climate Change

Climate change will impose some of its greatest effects on both the long-term availability and the short-term variability of water resources in many regions of the province. These effects have already been felt in many areas through increased frequency and magnitude of droughts, extreme rain and flooding, destruction of infrastructure, amount of accumulated snowpack, and changes in soil moisture and runoff.

According to a new NASA and National Science Foundation funded study of more than half of the world's freshwater supply, climate change is rapidly warming lakes and rivers around the world, and threatening freshwater supplies and ecosystems.[3]

"*Climate warming will adversely affect water quality and water quantity, as well as the magnitude and timing of river flows, lake levels and water renewal times."*[4] Drought conditions could place additional stress on riverine ecosystems, while more extreme rainfall will heighten the risk of dam failures (14 dams were breached in South Carolina flood in October of 2015) and rapid release of high volumes of water.[5,6] "*Climate will interact with overexploitation, dams and diversions, habitat destruction, non-native species and pollution to destroy native freshwater fisheries.*"[7] We must recognize the hazards of infrastructure that would degrade water quality and water quantity, threaten our fisheries, or that jeopardize the ecosystem services that healthy rivers provide during times of drought and flooding.

The liability and associated costs presented by the Hillsburgh Dam in this changing and unpredictable climate must also be evaluated and considered when comparing and ranking the various alternatives.

ORA also submits that provisions for a 25-year flood do not adequately address the risk of flooding when Conservation Authorities are now moving to a 200 to 250-year flood event standard.

Town's Preliminary Preferred Alternative B

It was reported in a 3 June 2016 article in The Wellington Advertiser that "*of the seven options, the preliminary preferred option is to rehabilitate the dam and reconstruct the bridge*", and that it "*ranked lowest for cost*"[8]. ORA would like to point out that the costs for this alternative should also take into account the full life cycle costs of operating and maintaining a dam, increased liability risks and costs, as well as the eventual costs associated with decommissioning.

As noted on your website, there has already been a dam failure necessitating emergency repairs, and with the extremes of climate change this and other even more serious issues could arise in the future. Dam owners have a fiduciary responsibility for public safety, and the costs of dam repair are ever increasing.

Decommissioning would remove a significant public safety risk, along with any associated liability issues, and dam operation and maintenance costs would be eliminated. These are all elements that must be included in any cost assessment of the various alternatives being considered.

ORA submits that Alternative B is a short-term solution that would place public safety and a valued cold-water fishery at long-term risk.

Conclusion

As the draft Natural Environment Report's analyses concluded, the two preferred alternatives are Alternative C, Option 2 and Alternative D, Option 2.[9] ORA is in full agreement, and is therefore recommending that the Town of Erin choose Alternative C or D, to rehabilitate or reconstruct the Station Street Bridge, and to decommission Hillsburgh Dam. Either of these alternatives/options would decrease thermal warming, improve water quality, restore sediment transport and stream ecology, remove a barrier to fish passage, and provide for the long-term sustainability of a coldwater brook trout fishery. Additionally, ORA recommends Option 2, which would provide an offline pond/wetland to provide important habitat for significant and endangered species. An offline pond would also retain the natural heritage and cultural values for the community.

The EA process is designed to balance social, economic and environmental concerns. Option 2 of Alternatives C and D provide a win-win solution with a pond feature, wetland habitat, restoration of coldwater fish habitat, reduced liability, and the lowest cost.

"*Climate change is the critical issue of our time*."[10] Healthy rivers are the key to successful adaptation to the extremes of climate change. There is an urgent need to integrate climate change into water protection strategies and policies.

There are a number of grants available for dam removal projects, and ORA would be very pleased to help the Town raise the necessary funds for the decommissioning of Hillsburgh Dam.

Thank you for this opportunity to comment!

Respectfully,

Linda Heron
Chair, Ontario Rivers Alliance
(705) 866-1677

cc: Ian Hagman, District Manager, OMNRF – Ian.Hagman@ontario.ca
Debra martin-Downs, Credit Valley Conservation – DMartin-Downs@creditvalleyca.ca

---

[1] Ontario's Provincial Fish Strategy: Fish for the Future. OMNRF, Fisheries Policy Section. ISBN #978-1-4606-5622-8 (PDF)
[2] *Metcalfe, R.A., Mackereth, R.W., Grantham, B., Jones, N., Pyrce, R.S., Haxton, T., Luce, J.J., Stainton, R., 2013. Aquatic Ecosystem Assessments for Rivers. Science and Research Branch, Ministry of Natural Resources, Peterborough, Ontario. 210 pp. 1.5.*
[3] *Study: Climate Change Rapidly Warming World's Lakes, 16 December 2015.*
[4] *Schindler, D.W., 2001. The cumulative effects of climate warming and other human stresses on Canadian freshwaters in the new millennium. Canadian Journal of Fisheries and Aquatic Sciences. 58: 18-29.*
[5] *Dams fail, death toll rises as flood flows east in Carolinas. http://wbtw.com/2015/10/08/dams-fail-death-toll-rises-as-flood-flows-east-in-carolinas/*
[6] *Colorado flood: Dams break in Larimer and Adams counties; overflowing in Boulder. http://www.denverpost.com/environment/ci_24080336/dams-break-at-rocky-mountain-arsenal-and-larimer*
[7] *Schindler, D.W., 2001. The cumulative effects of climate warming and other human stresses on Canadian freshwaters in the new Millennium. Canadian Journal of Fisheries and Aquatic Sciences. 58: 18-29.*
[8] *Station Street bridge, dam options range from $2 million to $4.2 million, The Wellington Advertiser, by Olivia Rutt, Vol 49, Issue 23, June 3, 2016.*
[9] *Draft – Hillsburgh Dam, Town of Erin, Environmental Assessment: Natural Environment Report.*
[10] *Ontario's Climate Change Discussion Paper 2015, Minister's Message, Glen Murray, Minister of Environment and Climate Change. P-3.*

Chris Clark

From: Chris Clark
Sent: October-24-16 10:31 AM
To: linda.heron@rogers.com
Cc: dina.lundy@erin.ca; Paul Ziegler; Teresa Hutchison
Subject: Hillsburgh Dam and Bridge, Upper West Credit River
Attachments: 2016-06-20-ORA-HillsburghDam.pdf; CVCA Comments Hillsburgh Dam - Response 1.pdf; CVCA Comments Hillsburgh Dam - Response 2.pdf; MNRF Comments Hillsburgh Dam - Response.pdf

Good Morning Linda,

On behalf of the Town of Erin, in response to your comments regarding the Hillsburgh Dam and Bridge Class EA, please accept our response to MNRF and CVC comments which are similar in nature to the concerns of the Ontario Rivers Alliance.

If you have any other questions or concerns, please do not hesitate to contact the undersigned.

Best Regards,

Chris Clark, M.A.Sc., P.Eng.

Triton Engineering Services Limited
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ALTERNATIVE B
Option 1

TOWN OF ERIN
HILLSBURGH DAM AND BRIDGE
STATION STREET AT UPPER WEST CREDIT RIVER

PUBLIC INFORMATION CENTRE

THURSDAY, MAY 19, 2016

COMMENT SHEET

NAME: [redacted]

ADDRESS: [redacted] STATION ST

PHONE#: [redacted]

Please provide us with your comments regarding the proposed project.

I prefer Alternative B, option one. The bridge, though historical would be difficult to rehabilitate to current safety standards.

I am very opposed to any plan that would result in draining the pond. We very much enjoy watching the migratory birds and other birds that use the pond year around. There are many other species that reside in and around the pond. They deserve to exist in their natural habitat.

With the location of the new laboratory to Station Road the pond will be a big asset that will become a focal point for the village of Hillsburgh.

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105 Queen Street West, Unit 14
Fergus, Ontario N1M 1S6
Phone: (519) 843-3920

Project Manager: Paul Ziegler
Email: pziegler@tritoneng.on.ca

TOWN OF ERIN
HILLSBURGH DAM AND BRIDGE
STATION STREET AT UPPER WEST CREDIT RIVER

PUBLIC INFORMATION CENTRE

THURSDAY, MAY 19, 2016

COMMENT SHEET

NAME: [redacted]

ADDRESS: [redacted] STATION ST TRI HILLSBURGH

PHONE#: [redacted]

Please provide us with your comments regarding the proposed project.

I am very much opposed to the draining of the pond. It is too valuable to the wildlife and the heritage of the area.

I feel very strongly that the only alternative is Alternative B option #1

R [illegible]

TRITON ENGINEERING SERVICES LIMITED
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Project Manager: Paul Ziegler
Email: pziegler@tritoneng.on.ca

TOWN OF ERIN
HILLSBURGH DAM AND BRIDGE
STATION STREET AT UPPER WEST CREDIT RIVER

PUBLIC INFORMATION CENTRE

THURSDAY, MAY 19, 2016

COMMENT SHEET

NAME: [redacted]

ADDRESS: [redacted] Erin Heights Drive

PHONE#: [redacted]

Please provide us with your comments regarding the proposed project.

The Pond owner should own the Dam and pay the cost associated with its repair/replacement.
It is not in the interest of the Town to own a dam and the liability involved.

What legal document enables the Town to own the "Dam"?

Why not have the Pond owner take ownership of the "dam" and relocate onto his property.

The ideal situation would be to have the landowner build an adjacent "dam" upstream of the existing road/dam to provide for the existence of the pond and its control. And, make use of the existing dam or otherwise bring the road up to specification

TRITON ENGINEERING SERVICES LIMITED
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Project Manager: Paul Ziegler
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TOWN OF ERIN
HILLSBURGH DAM AND BRIDGE
STATION STREET AT UPPER WEST CREDIT RIVER

PUBLIC INFORMATION CENTRE

THURSDAY, MAY 19, 2016

COMMENT SHEET

RECEIVED
MAY 31 2016
TOWN OF ERIN

NAME: [redacted]

ADDRESS: [redacted] GEORGE ST., HILLSBURGH

PHONE#: [redacted]

Please provide us with your comments regarding the proposed project.

First let me congratulate you on an excellent presentation of the various alternatives and options. Well done.

My strong preference is for Alternative B, option 1. I get considerable joy in watching the wildlife that inhabit the pond as well as seeing the various moods reflected from the water as the seasons change. It would make me very sad if the pond were to become smaller or disappear, not to mention the effect on my property value.

Thank you for the opportunity to make comments on the alternatives.

[redacted]

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers
105 Queen Street West, Unit 14
Fergus, Ontario N1M 1S6
Phone: (519) 843-3920

Project Manager: Paul Ziegler
Email: pziegler@tritoneng.on.ca

TOWN OF ERIN
HILLSBURGH DAM AND BRIDGE
STATION STREET AT UPPER WEST CREDIT RIVER

PUBLIC INFORMATION CENTRE

THURSDAY, MAY 19, 2016

COMMENT SHEET

RECEIVED
MAY 31 2016
TOWN OF ERIN

NAME: [redacted]

ADDRESS: [redacted] GEORGE ST., HILLSBURGH

PHONE#: [redacted]

Please provide us with your comments regarding the proposed project.

I am in favour of Alternative B, Option 1.

I would also like to see a therapeutic garden established on the property for the enjoyment of seniors and the education of young people. Food from the garden could be donated to the food bank.

I would like the pond to be retained as it is so that the wildlife that is currently there is not disturbed & is there for the enjoyment of future generations!

The pond could be a centre for nature photography; with ~~centres~~ benches a place for quiet reflection; and a place to educate youth about nature.

[redacted]

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Project Manager: Paul Ziegler
Email: pziegler@tritoneng.on.ca

Chris Clark

From: Kathryn Ironmonger <Kathryn.Ironmonger@erin.ca>
Sent: June-14-16 9:13 AM
To: Chris Clark; Paul Ziegler
Subject: FW: Hills burgh Dam Study

FYI

Dina Lundy **Dipl.M.A, CMO**
Clerk, Town of Erin
5684 Trafalgar Rd
Hillsburgh, ON
519-855-4407 x233
Clerk's and Administration Department Webpage

From: [redacted]
Sent: Tuesday, June 14, 2016 9:05 AM
To: Allan Alls; Council
Subject: Hills burgh Dam Study

June 14,2016

Mayor Alls and Members of the Town Council

Re: Environment Assessment- Hillsburgh Dam and Bridge

Hello: The aim of this email is to highlight an aspect of the Study that is currently taken place and to offer some perspective.

Hillsburgh is badly in need of an enlargement to it's municipal water system. Too many homes rely on shallow dug wells. Key elements of Hillsburgh rely on private wells (school, stores and firehall, future library and the arena). The study indicates that the Hillsburgh pond not only serves as a pleasant landscape but is probably a key feature to enabling town residents to utilize shallow wells. The majority of these wells (in my opinion) are subject to contamination and the water quality would probably not meet Ontario Drinking Water Standards for such parameters as bacteria,lead and sodium. At times I wonder if these homes serviced by shallow wells are any better off than the Reservation water sources that we read about in the mainstream newspapers. It seems to me that the Town doesn't have a strategic plan to eventually solve this environmental problem.
It appears to me that one day Hilsburgh will have a multimillion dollar library and bridge/ dam complex. It concerns me that when the ribbons are cut for these projects, some home owners in this community will still be utilizing these high risk water sources. It concerns me that drinkable water appears to be less of a concern here and there isn't funding available at a higher level to address what appears to me as a impending health issue.

[redacted]

Chris Clark

From: [redacted]
Sent: May-20-16 12:08 AM
To: Paul Ziegler
Cc: Chris Clark
Subject: Comments regarding the Preliminary findings of the Hillsburgh Dam and Bridge EA

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Paul,

As we discussed at the meeting on May 19th , I would like to hear the opinion of the study group on how they address water rights to the pond above Station Road. . My property sits directly below Station Road and i have a particular interest in these rights.

Also , I would like to offer the suggestion that should the alternative chosen require it, the the old water raceway south of Station Road could be made available to redirect water while repair or restoration work proceeds on the bridge.

sincerely,

[redacted]

Chris Clark

From: [redacted]
Sent: June-24-16 12:15 PM
To: Chris Clark
Cc: Council; Dina Lundy; Paul Ziegler
Subject: Re: Hillsburgh Dam and Bridge Assessment

Dear Chris ,
I will follow up with my lawyer on your request .

Ian

On Friday, 24 June 2016, Chris Clark <cclark@tritoneng.on.ca> wrote:

Hello [redacted]

In response to your comments below, could you please provide the documentation which supports this opinion so as to give us an opportunity to respond to your concerns accordingly.

Regards,

Chris Clark, M.A.Sc., P.Eng.

Triton Engineering Services Limited

105 Queen Street West, Unit 14 Fergus, ON N1M 1S6

Tel - (519) 843-3920 • Fax - (519) 843-1943 • www.tritoneng.on.ca

Cell – (519) 993-7918

From: Dina Lundy [mailto:Dina.Lundy@erin.ca]
Sent: June-24-16 7:45 AM
To: Chris Clark; Paul Ziegler

Cc: Council
Subject: FW: Hillsburgh Dam and Bridge Assessment

Please see comments below. Paul/Chris, can you respond?

Dina Lundy **Dipl.M.A, CMO**

Clerk, Town of Erin

5684 Trafalgar Rd

Hillsburgh, ON
519-855-4407 x233

Clerk's and Administration Department Webpage

From: [redacted]
Sent: Thursday, June 23, 2016 10:35 PM
To: Dina Lundy
Subject: Hillsburgh Dam and Bridge Assessment

Dear Ms. Lundy,

Please inform those involved in the decision process on the various alternatives for the Dam and Bridge that I strongly disagree with the conclusion that none of the alternatives has an impact on water rights. The deed to my property , the Ainsworth Pond and adjacent Mill notes that they have commercial water rights to the upper pond. I would like to have my rights noted and addressed.

Sincerely,

[redacted]

Chris Clark

From: [redacted]
Sent: October-20-16 1:00 PM
To: Paul Ziegler; Chris Clark
Subject: Fw: add to the Town of Erin Council agenda for Oct 18
Attachments: Questions Oct.18 agenda.docx

Importance: High

Hi Paul and Chris:

Submitted this letter on time to be on the Council meeting agenda - the Mayor apparently pulled it. I understand you have been asked to re-evaluate some components of the E.A. and so I am submitting this letter of questions & concern directly to you as the Engineering consults so engaged. Please consider it a late submission from a member of the public.

I DO NOT WANT TRITON TO ANSWER ANY OF THE QUESTIONS in a reply email to me as that would need Town of Erin approval – costs money ... instead ...just please consider these question as information from a former Mayor and county councillor who deems the information important and that I believe should be very much considered in an E.A. process, as it appears that some of it has not been considered.

Most concerning is my recollection and mapping provided by the CVC, which if the pond/dam is maintained, keeps a number of residential properties plus the Hillsburgh community center and arena (emergency evacuation center) and possibly the municipal well in the flood plain...so subject to flooding. Given Global warming and the intensity of storms – wondering if this has been considered in the E.A.? I would think it is a very significant factor and future long term liability and costs if a serious floods were to occur and damage to life and property ensued because of a decision to keep the pond/dam. Furthermore since the county is co-owner of the dam why are they not paying their portion of the costs in the E.A.?

As a professional engineering firm, the concern has now been brought to your attention if it was not previously done so. In such a situation erring on the side of caution to do what is possible to prevent a flooding occurrence would be in the best interests of the Town and its residents. I am sure the Official plan would support such a position.

Please read the letter which provides some history and poses some questions and please consider some of these questions in your E.A. if you have not done so to date. You know that because of the pond dam – historically Hillsburgh has been flooded in the past. In that last major storm that hit the Toronto area, homes in Mississauga were flooded and the owners of the dam sued. Closer to home the old dam just south of Orangeville in Melville blew out only a few years ago. Odds are one day it will be Erin/Hillsburgh turn with a severe storm – hope we are prepared. You may also want to remind the Town that in Erin Village the Town solely owns a dam, that has been on the work list for years and ignored.

Thanks and regards

[redacted]

Dear Mayor Alls and Erin Town Councillors

October 11 2016

I would appreciate if all elected councillors could respond to these questions, as many are Yes/No answers.

Although I understand the Mayor is spokesperson for Council, that is following a council decision/resolution, not prior to. It appears council is unknowledgeable regarding some facts and history of the Hillsburgh Mill Pond/Dam matter. So on behalf of the taxpayers I present the following recollection and pose questions for Council's enlightenment.

Let us try to straighten out a few ownership facts here. This is what town staff and the MNR told previous council regarding the Hillsburgh Mill Pond/Dam as accurately as I can remember. If this understanding has changed Council should explain how and why.

Q.1) Has this Council had a background presentation from the MNR this term? MNR are the provincial ministry responsible for the Dam. If not, why not as most of you are new to this matter?

As I recall ... The Town owns 1) the bridge (which needs replacing as many other town bridges do, there's a report with a long list), 2) a section of Station Road, which holds back the natural stream flow, and 3) the Town owns a portion of the Dam – But ONLY A PORTION of the Dam! – Not the entire Dam, just that portion of Station Road.

The County NOW owns 1) the Pond; 2) the water flow control structure (which will need to be replaced and updated into a new dam structure to withstand the 100 - 200 year storm, if a new dam is decided upon and constructed; and most importantly 3) the COUNTY OWNS THE REMAINDER OF THE DAM. According to the MNR the Dam consists of all of the earthen border that holds water back from its natural stream flow, including the control structure.

Therefore, the Town and County are Co-owners of the Dam ...same as we were told last term, then the Town and the previous owner were co-owners of the dam. We were also advised by MNR that the Town did not have to remain a co-owner of the dam if it chose not to do so.

But it is well understood that with ownership comes responsibility and costs. Unless some backroom closed meeting deal has changed this understanding?

Q.2) So has such a closed meeting deal been entered into? i) at the Town meeting? or ii) at a County Council meeting? to have a different understanding of known responsibilities regarding the dam? If there is a different understanding – when will it be made public in open council session? Such a new understanding would need to be ratified by Erin Council in Open session.

Assuming no special deal was entered into, the situation would remain the same to the Town's relationship with the previous pond owner. Therefore the County as Co-owner of the Dam is responsible for costs.

Q.3) So how much is the County paying towards this project in total, the Environmental Assessment (E.A.) and Dam reconstruction? WITHOUT THE DAM THERE IS NO POND. Isn't that the focus of the E.A.? I believe the County was named in the original tendered E.A. proposal – so they need to pay up.

Q.4) When will County contribute $$$ to the E.A. and NEW DAM Construction costs?

Q.5) How will these costs be proportioned? What formula will be used? The County owns 95% plus of the Dam (as measured by land holding back water) and also owns the control structure. Will the County be paying 95% of the costs on top of the 3.8 million for the Hillsburgh library or is there another formula already considered and approved? Please advise and inform the public.

Q.6) If the dam is removed and a bridge installed ongoing maintenance costs will be minimal compared to building a new dam. Have ongoing dam maintenance, staff training and operating costs been determined? Will the County or Town budgets be responsible for these costs?

Q.7) Have ongoing liability costs and insurance costs been determined? How will these costs be proportioned between the County and the Town? For example - who will pay for the required fencing of the pond and maintain the fence? Even closed landfill sites, which pose much less liability than a pond, have been fenced by the County. Again with ownership comes responsibility – who will be paying for what?

Mr. Mayor & Council, you do understand that all these questions and others should be considered & answered prior to making a final decision on the E.A. and funding the project. The problem I am having with this process, is that many of these questions have not been posed or considered nor discussed publically in open session to date, this has the appearance of the taxpaying public being purposely being kept in the dark.

Q.8) Have some of these matters been discussed in closed session? If so please provide the municipal act justification for doing so. Also advise the public generally what issues have been discussed in closed session and when those questions & discussions will be held in open session. The Mayor and Council do understand that decisions cannot be made in closed session; that decisions must be made in open session accompanied with appropriate discussion and vote by council.

Very concerning about this all, is that many residential properties, including municipal infrastructure; namely the Hillsburgh arena and also perhaps the mill street municipal well will remain in the Flood plain if the Dam is kept.

Q.9) Has this been considered by Erin Council? Staff should have CVC mapping on file. Can Council continue to maintain properties in a flood plain if it has the ability to remove them from the flood plain?

Q.10) Are local residents on Mill street and all those others impacted by being in the flood plain been made aware that being in the flood plain seriously limits and curtails what they can do with their properties? Has Council made them aware of this and what the limitations are thereof?

Q.11) Could Council or the municipality be held responsible or liable if a flood was to occur and these residential properties were flooded, because of a council decision to keep the dam?

Q.12) Could Councillors be personally responsible if the well water is contaminated and residents get sick...(Walkerton) remember what you signed councillors. I believe Mr. Smedley (former water super) told Council that the mill street well had a additional tile installed so just to lift it out of the flood plain. Wondering how long ago this was done? Is this sufficient, given global warning and the intensity and severity of storms and suddenness of flooding events?

Q.13) Per emergency management – can the Hillsburgh Arena be considered an evacuation center when it's in the floodplain and possibly flooded during an emergency?

Q.14) What does the CVC report say; regarding what's best for the Credit River, the cold water fishery? Keeping the pond or restoring the stream? When can the public see this report? This would be part of the E.A. surely.

Q.15) Isn't the expensive, Environmental Assessment report now just a farce with respect to the question of whether or not to keep and rebuild the Mill pond dam? Since the County bought the pond and decided they want to keep the pond, what choice do local Erin councillors have? Do local Erin Councillors have a choice in this matter at all or has it been effectively taken away from them and they are just expected to go along to get along, regardless of the cost to Erin taxpayers? Given what's transpired –re the County purchase of this pond and the order of events thereof, has not the entire E.A. process been severely tainted and so can be deemed worthless? Does the E.A. need to be redone?

Q.16) Will County donate the pond back to the municipality when the library is opened? Precedent; County bridges on local roads. The county fixed or replaced these bridges and then they were given to the municipality. Since the County has no justification to be in the pond, dam or recreation business, what assurances do Erin taxpayers have that this will not be the case? Since at present, even though the County is a co-owner of the dam, it does not appear that they are facing any costs related to keeping the pond/dam? Can Erin council request written assurances that they will not in the future be deeded the pond and all costs involved? A written assurance that the County will retain ownership of the pond/dam and all related costs and expenses going forward? Hopeful that this is not another backroom handshake deal like Center 2000 where Erin taxpayers are just expected to keep paying and paying and paying.

Mayor Alls, as a Wellington Councillor & County Councillor Mr. Brianceau;

Q.1) Please explain to the Public why the County purchased the Hillsburgh Mill pond?
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Erin Taxpayers cannot afford all this grandeur and a lifetime of additional costs.

Fellow residents if this pond/dam was not going to be such an ongoing money pit, I would not invest the time to write this letter. But so far there remain so many unanswered questions and so many decisions made thus far which fly squarely in the face of common sense & logic, that one must conclude what's going on here is not right, minimally the process so far has not been right.

Councillors needed to be made aware of facts that have apparently not being presented before making final decisions.

Councillors you were elected to ask the questions ... you have now been informed of some concerns, please do your due diligence, check out the facts and make the best decision possible as you promised the taxpayers you would.

Mr. Mayor it's time to provide the taxpayers some real answers....not the rhetoric you wrote to the advocate last week.

Respectfully submitted

[redacted] Fisheries Biologist; Former Mayor& County Councillor

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Respectfully submitted

[redacted] Fisheries Biologist; Former Mayor& County Councillor

Chris Clark

From: Paul Ziegler
Sent: November-22-16 3:30 PM
To: Chris Clark
Subject: FW: information request 2

fyi

Paul Ziegler, C.E.T.

Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 • Fax - (519) 843-1943 • www.tritoneng.on.ca

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From: Paul Ziegler
Sent: November-14-16 3:42 PM
To: [redacted]
Cc: 'Derek McCaughan'
Subject: RE: information request 2

[redacted]

The Municipal Class EA process was selected to jointly address the bridge and dam. The dam portion is currently under order by the MNRF to find a permanent solution to address the Lakes, Rivers and Improvement Act Emergency Repair Permit which allowed the Town to repair the dam and reopen Station Road. This emergency permit was issued June, 2012 on the condition that a permanent solution was to be determined by June 1, 2014. As a process to determine a permanent solution was not initiated by Council in time, the June 1, 2014 deadline was not achievable. Eventually, a request to the MNRF was made and granted to extend this deadline to December 1, 2016 on the premise that the Class EA process was initiated.

List of works as part of the Station Road Dan Repair and Municipal Class EA:

- *CMT Engineering Structural Investigation - June 2012*
- *Dam Emergency Repairs Completed - December 2012*
- *Collection of Class EA Background Information - June 2014*
- *Terms of Reference and Work Plan to CVC and MNRF for Review – June to Nov 2014*
- *Meeting #1 – CVC, MNRF, Aboud, Triton and Town – Sept 2014*
- *Determine Study Area and List of Stakeholders – Oct 2014*

- *Complete Bridge Cultural Heritage and Archaeological Reports – Nov 2014*
- *Issue Notice of Study Commencement – Dec 2014*
- *Release Letter of Consent for Property Access to Perform Field Investigations – Feb 2015*
- *Commence Natural Heritage Field Studies – March 2015 to Feb 2016*
- *Complete Dam Cultural Heritage Report – Apr 2015*
- *Review of Legal Opinion – May 2015*
- *Commence Compilation of Class EA Project File Report – Jan 2016*
- *Draft Natural Heritage Report to MNRF and CVC – March 2016*
- *Public Information Meeting – May 2016*
- *Review of Public and Agency Comments – July 2016 to Present*
- *Meeting #2 – Town, County, Triton, Aboud, MNRF, CVC – July 2016*
- *Technical Meeting #3 – Town, Triton, CVC and MNRF – Aug 2016*
- *Hydrogeology Technical Memo and Natural Heritage Report Finalized – Oct 2016*
- *Finalize Evaluation of Alternatives and Address Agency Comments – Sept 2016 to Present*
- *Preparation of Project File Report (Executive Summary)*

At this time, we would encourage you to provide a formal response in writing stating your opinion and rationale with respect to the selection of a specific alternative and/or comments to be included as part of the Class EA document.

Alternatively, all project contents including the meeting minutes will be a part of the Class EA's Project File Report (PFR)which will be released and available on the Town's website, shortly (Early December). The PFR will provide the reader with the Class EA's consultation process to-date along with justification and reasoning for the selection of a preferred alternative. Once this has been issued, you will have ample time to review the PFR in its entirety (30 day minimum). Upon completion of your review, should you have additional questions, we would encourage you to come forth with your questions or if warranted, make a formal request for additional information.

We thank you for your interest in this project. We have also attached a copy of the Environmental Assessment Process for reference.

Paul Ziegler

Paul Ziegler, C.E.T.

Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 • Fax - (519) 843-1943 • www.tritoneng.on.ca

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From: Derek McCaughan [mailto:Derek.McCaughan@erin.ca]
Sent: November-09-16 9:49 AM
To: Paul Ziegler
Cc: [redacted]
Subject: FW: information request 2

Good morning Paul,

As you are aware, many involved in this EA are receiving similar emails asking for individual responses. To maintain consistency and to ensure comprehensiveness of responses, all such questions/requests will now be channelled through your firm for one response issued on behalf of the Town. Please ensure appropriate parties are provided a copy of responses issued. Thanks.

Derek

Derek McCaughan
Interim CAO
Corporation of the Town of Erin
5684 Trafalgar Rd.
Hillsburgh ON N0B 1Z0
Office: (519) 855-4407 Ext. 222
E-mail: derek.mccaughan@erin.ca

From: [redacted]
Sent: November-09-16 8:56 AM
To: Derek McCaughan
Cc: CAO Email
Subject: information request 2

Good morning Derek:

Please email me the agenda and minutes of any and all meetings held to discuss the Hillsburgh Mill pond with any or all of these participants Town, County, CVC, MNR &/or Triton engineering since the E.A. began. Particularly interested in meetings with the CVC and MNR.

Hope this is broad enough to encapsulate enough of the participants, so that I can receive the information requested. You asked in my last request on this matter ...if I am aware of any meeting dates & to provide them to you ?

Sorry, I do not have access to your calendar to determine the possible dates. Since you probably attend these meetings – I would respectfully suggest that you are probably aware of the meeting dates.

Please forward all the applicable agenda and minutes, prior to the next council meeting on the 15th.

Thank you and regards

[redacted]

APPENDIX F-3

Record of Meetings

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

MEETING MINUTES

DATE:	Wednesday, September 24, 2014
TIME:	10:00 a.m.
LOCATION:	Credit Valley Conservation Authority Headquarters – 1255 Old Derry Road, Mississauga
OUR FILE:	A4685E
RE:	HILLSBURGH DAM, MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT, TOWN OF ERIN

Attendees:

T. Slaght, J. Wong, J. Clayton; Credit Valley Conservation Authority (CVC)

R. Whalen, D. Ryan; Ministry of Natural Resources and Forestry (MNRF)

L. Van Wyck; Town of Erin (Town)

S. Aboud, R. Hamelin; Aboud & Associates Inc. (Aboud)

C. Clark; Triton Engineering Services Limited (TESL)

1. C. Clark reviewed the projects history, from temporary works completed to repair the Dam/Road in 2011/2012 to the present permanent solution involving the completion of a Municipal Class Environmental Assessment (Class EA) to fulfill the requirements of the MNRF's Non-Application Emergency Works under the Lakes and Rivers Improvement Act.

2. D. Ryan asked if project Problem Statement has been formed. C. Clark to detail Problem Statement and circulate to project team. To be included as part of the Class EA Notice of Project Commencement, to be released shortly.

3. Aboud presented the proposed project Study Area with respect to the Natural Heritage investigations. MNRF and CVC recommended extension to Wellington Road 22 east to Trafalgar Rd. Logic behind Study Area was connectivity and impact to Provincially Significant Wetlands (PSW).

4. Aboud overviewed the required Natural Heritage information that is still outstanding for "desktop investigations".

    a. All data requests to go through T. Slaght (CVC) and R. Whalen (MNRF)
    b. All Natural Heritage data requests are to come from Aboud
    c. Aboud to submit revised Study Area to MNRF/CVC as part of formal data requests
    d. R. Whalen to provide mapping of wetland evaluations, if available

5. Aboud will be utilizing the services of Aquafor Beech for fish habitat investigations. Data required for this portion of investigations are as follows; fish community data (presence/absence, biomass), thermal regimes and temp data, spawning survey, benthic macroinverts, geomorphology, invasive species info (Round Goby) and fish habitat assessment.

6. J. Clayton overviewed available fish related data. This includes periodic fish inventories from 1954 to present, fish biomass collection, thermal records, presence of invasive Round Goby, spawning data (2010 - 2014).

    a. Temperature loggers currently on-site and logging and could be left longer into the fall/winter season if required.
    b. Groundwater seeps throughout system, but no specific locations identified in study area.
    c. Area is historically Brook Trout habitat, with population currently upstream and downstream of the pond.
    d. CVC considers the Banded Killifish and the Slimy Sculpin as important species due to the rarity in the watershed.

7. J. Clayton added that Round Goby control methods may be implemented this fall or next spring within the Hillsburgh Pond and other affected ponds along the watercourse. This would involve lowering the water levels and removing desirable fish species.

    a. May be an opportunity to inventory fish species at this time
    b. During previous public contact related to Goby eradication, public was opposed temporary water drawdowns

8. According to MNRF, there is no known presence of Species at Risk (SAR) within the Study Area. This will be confirmed through Aboud's desktop/field investigations.

9. C. Clark reviewed existing hydraulic data completed as part of the temporary works, as well as, the Dam's "High" Hazard Potential Classification (HPC). CVC agreed to share any relevant data/information completed or acquired post temporary dam repair works in order to perform any additional analysis.

    a. T. Slaght - CVC main criteria when evaluating EA options will be; 1) Flood hazard reduction 2) Sediment/Erosion impact reduction. There must be no negative impacts to flooding or erosion. The options reviewed should seek to improve these conditions, as well as; improve natural heritage features present. Flooding and erosion must be demonstrated as part of the Project File Report while sediment control can be established during the detailed design stage.

10. It was agreed that Geomorphology and Hydrogeology investigations be completed as part of the Class EA to cover all areas for the potential alternative outcomes.

    a. CVC has 2005 fluvial geomorphology data completed by PEIL for West Credit Watershed, which can be provided.
    b. Provincial Groundwater Monitoring Network and Source Water Protection data may help to provide background. Local water bottling company may also be a source of groundwater data.

11. C. Clark and L. Van Wyck reminded the group of the potential restrictions affecting the Class EA due to Town's property limitations. The Town owns the Station Street road right-of-way but not the north and south adjacent properties. A number of field investigations will need to be performed at these locations. The north landowner also owns the Hillsburgh Pond's stop-log control structure.

    a. D. Ryan reminded everyone of the adjacent landowners "riparian interests" to the Dam. This involves holding their concerns/interests at stake. Further, the Town can perform the Class EA to uphold their responsibilities to the Dam. Adjacent landowner has legislative responsibilities if dam were to fail.
    b. As the north adjacent landowner and the Town are affiliated "dam owners" and the requirements for land access to south pond (Ainsworth Pond), it was suggested and agreed that a personal letter be distributed to these parties to request their involvement in the Class EA process. This could eliminate any property access restrictions.

12. General discussion of how potential options could affect the existing PSW wetland complex. Due to the overall size of the Provincially Significant West Credit Wetland Complex it would be expected that a local reduction in extent around the Station Street Dam site would not affect the PSW status of the complex as a whole. However, specific areas that transition from wetland to upland due to changes in hydrology would no longer be included in the wetland complex and would therefore not have PSW status. However, this is to be determined as part of the Class EA process.

13. Those parties and members present at this meeting will be the main Project Team moving forward.

    a. Technical reporting and any project status updates to be provided approximately every three months.
    b. All documents will be reviewed by the Committee before release to the Public.
    c. Meetings will be scheduled as needed.

Project Next Steps/Actions Items:

1. Natural Heritage Study Area and project Terms of Reference to be completed and circulated to Committee for data requisitions.
2. Draft a letter to send to adjacent landowners requesting their personal involvement in the Class EA process.
3. Problem/Opportunity Statement to be developed and included in the Notice of Project Commencement to be released to public.
4. Next Status Up-date Mid-December 2014

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

MEETING MINUTES

DATE:	Thursday, July 21, 2016
TIME:	10:00 a.m.
LOCATION:	Town of Erin Head Office – 5684 Trafalgar Road, Hillsburgh
OUR FILE:	A4685E
RE:	HILLSBURGH DAM & BRIDGE, MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT, TOWN OF ERIN

Attendees:

Tyler Slaght, Jon Clayton, Tim Mereu; Credit Valley Conservation Authority (CVC)

Tara McKenna, Doug Ryan, Melinda Thompson, Ken Cornelisse; Ministry of Natural Resources and Forestry (MNRF)

Allan Alls, Derek McCaughn, Greg Delfosse; Town of Erin (Town)

Scott Wilson, Gray Cousins, George Bridge; County of Wellington (County)

Ryan Hamelin; Aboud & Associates Inc. (Aboud)

Chris Clark, Paul Ziegler; Triton Engineering Services Limited (Triton)

Introductions:

Overview of Project To Date:

1. Triton reviewed history of project to date including discussing problem statement and objectives of the Class EA.

2. C. Clark reviewed various background studies/work which have been completed as part of the Class EA to date including; Natural Heritage, Cultural Heritage, Archaeological, Structural/Geotechnical, Hydrogeology, Hydrology and Legal Survey.

3. P. Ziegler reviewed the outcome of the Public Information Centre (PIC) and provided a breakdown of the various viable Alternatives.

4. C. Clark reviewed the comments received to date. In general, members of the community are in favour of Alternative B Option 1. Feedback received from public interest groups (Ontario Rivers Alliance and Trout Unlimited Canada), states they would prefer Alternative C or D.

   Mayor A. Alls provided a brief overview of the Town's position with regard to the project's cost to-date and stressed concerns with the amount of incurred "soft" costs by the Town.

Remaining Viable Alternatives:

5. Based on comments received P. Ziegler provided reasoning for the remaining feasible alternatives which are recognized as the following:

    a. Alternative B, Option 1 (reconstruct bridge, rehabilitate dam)
    b. Alternative D, Option 1 (reconstruct bridge, decommission dam)
    c. Alternative D, Option 2 (reconstruct bridge, decommission dam and construct offline pond)

6. Triton provided reasoning as to why Alternative B, Option 1 (reconstruct the bridge and rehabilitate the dam) is the most feasible for the Town due to property restrictions. The Town can only complete construction for a permanent solution within their 20 metre right-of-way. This includes the earthen berm dam to property line and the bridge. This does not include the stop-log control structures for the dam which dictate the operating level of the pond.

    G. Bridge expressed the County's directive in being good environmental stewards and will work with the Town and regulatory agencies to provide mitigation measures, where financially feasible, to improve the ecosystem of the pond.

    S. Wilson added the County purchased the pond property and the adjacent house for consideration of the future new library location. The pond was to be a part of the overall plan for the Library. If the pond is removed the Library may not move forward which may result in the County selling the property and relocating. The timeline of the Class EA is crucial for the County as they need to know how and when they can proceed as the outcome of the Class EA could impact decisions for this site.

    D. Ryan suggested the County provide some written comments and reasoning as to the Alternative in which they are in favour. This will ensure the County's interests are acknowledged and a part of the Class EA report document.

    K. Cornelisse proposed there are a number of public funding sources to provide restoration works pertaining to dams and dam decommissioning.

CVCA Topics for Discussion

T. Slaght reviewed the CVCA's directives and concerns with respect to the project to-date.

7. Impacts/targets for the wetland

    a. How the Alternatives will affect the surrounding wetland community
    b. Impacts of dug wells (more information is required)

8. Impacts/targets for the wetland

    J. Clayton reviewed thermal regime of range of 17^{o}C to 6^{o}C at each inlet to the pond. The outlet of the pond to the Ainsworth Pond is approximately 21 ^{o}C. Brook trout thrive in no more than 20^{o}C water temperature.

    K. Cornelisse discussed impacts to brook trout. Rudd dam, 2 ponds downstream of the Hillsburgh Pond) is to be removed to improve the overall systems thermal regime.

9. Impacts to flooding

   Alternative is to have no negative impacts to upstream and downstream flooding levels. Additional engineering work with respect to flooding levels is required for CVCA review.

10. Impacts to erosion

    T. Slaght reminded the group that the selected Alternative should have no negative impacts to the overall river system with respect to an increase to sediment and erosion. The current ranking matrix only describes the effects of sediment and erosion during construction phases. The impacts the Alternative has on the river system for the long-term needs to be addressed.

11. Concerns regarding criteria ranking and scoring:

    a. Significate weighting to cold water fisheries should be considered, as this is part of the Upper West Credit River's Fisheries Management Plan.

    b. K. Cornelisse reminded that the Draft Natural Heritage Report concluded that Alternative C and D were preferred.

Additional Discussion

12. T. Mereu questioned how the impact of removing the dam to favour the fisheries will effect to the extent and possible elimination of Provincially Significant Wetlands (PSW's).

    G. Cousins questioned that at the County Planning level; a proposed development is to have no impact to a PSW. Why is it acceptable if a PSW is removed for this purpose (by removing pond)?

    T. McKenna and M. Thompson provided and explanation for to the above questions. The Class EA process allows for the alternation to a PSW. The appropriate balance to the health of the fisheries and the removal of the PSWs has to be achieved as part of the outcome of the Class EA.

Project Next Steps:

13. Overall expectations and requirements of CVCA and MNFR going forward in the Class EA process:

    a. D. Ryan discussed the Hazard Potential Classification (HPC) under the Lakes and Rivers Improvement Act and agreed that it may make sense to move forward with the only attainable Alternative, however; some Alternatives may require more engineering work than others. Removing the earthen berm structure will have the greatest affect in reducing the risk and lowering the HPC.

    b. R. Hamelin inquired if mitigation strategies would be accepted if Alternative B was selected (ie. Fish ladders or bottom drain structures)

    c. J. Clayton suggested that mitigation strategies are possible however; it would be a process of balancing costs.

14. To keep moving forward with the project, P. Ziegler suggested a technical meeting involving the CVCA and MNRF staff be arranged to provide mitigation measures for narrowing alternatives. An update to Town Council will be provided by September, 2016.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

MEETING MINUTES

DATE:	Monday, August 22, 2016
TIME:	2:00 p.m.
LOCATION:	Town of Erin Head Office – 5684 Trafalgar Road, Hillsburgh
OUR FILE:	A4685E
RE:	HILLSBURGH DAM & BRIDGE, MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT, TOWN OF ERIN TECHNICAL MEETING

Attendees:

Tyler Slaght, Jon Clayton, Jeff Wong, Liam Marray; Credit Valley Conservation Authority (CVC)
Tara McKenna, Ken Cornelisse; Ministry of Natural Resources and Forestry (MNRF)

Greg Delfosse; Town of Erin (Town)

Chris Clark; Triton Engineering Services Limited (Triton)

NOTES:

1. Triton reviewed the physical constraints due to ownership issues.
2. Stop-Log controls are part of pond property, not owned by Town. This makes it difficult for the Town to implement a dam decommissioning.
3. Currently not possible to complete sediment survey as no access to pond property.
4. All present agreed, the goal is to complete a good Class EA document which examines all possible options and is defendable.
5. Discussions related to the amount of design required for bridge and dam. At Class EA level, conceptual designs will be evaluated.
6. CVC and MNRF staff - restoration costs seem high. The restoration of the pond can occur naturally which will lower costs significantly.
7. Triton response – as there are no set standards for this type of restoration Aboud and Associates utilized CVC standards for SWM pond restoration/design. This accounts for the

plantings of non-invasive species etc. This can be quantified and is defendable and is only used as an order of magnitude for evaluation purposes to rank Alternatives.

8. CVC proposed potentially evaluating options which involved:

    - Town purchasing inlet structure
    - Selling the road to County
    - Compromising with the pond owner

9. Triton response – these would be difficult to pursue and would involve political and staff input

10. Discussions regarding dam life cycle costs – MNRF explained, typically annual operation and maintenance costs are equal to 1-2% of capital replacement costs

11. Triton requested further information regarding dam costs be forwarded to Project Team by both agencies (see attached email correspondence)

12. Discussions related to hydraulics – CVC explained, due to proximity of fire hall a new bridge must convey the Regional storm under the emergency access standards.

13. CVC suggested adding a positive and negative neutral category to the scoring matrix as well as using a multiplier for low, medium and high weighting. A negative outcome receives a negative score while a positive outcome receives a positive score.

Chris Clark

From: Ryan, Doug (MNRF) <doug.ryan@ontario.ca>
Sent: September-29-16 11:46 AM
To: Chris Clark
Cc: Paul Ziegler
Subject: RE: Hillsburgh Dam and Bridge Class EA - Aug 22, 2016 Technical Meeting Preparation
Attachments: Dam_Costs.docx; RE: Hillsburgh Dam and Bridge Class EA - Technical Meeting follow-up

Chris

I had a real quick look at the attached, and can offer the following;

1. All of the 'Required Studies' (Ie. DSR's, OMSS's, EPP's, and ERP's) are all Best Management Practices at this point in time, and not Regulatory Requirements. While we would certainly support competing such studies, they are not required in Regulation/legislation.

2. The range of estimated costs for these 'Required Studies' generally seems reasonable……..we often do DSR's in groups of dams within a watershed…..last time we did this the cost was around $500k for 24 dams…..which equals around $20k each. But the last full DSR we did for a single dam coast around $120k. Same sort of thing for OMSS's and EPP's….we tend to do them in packages of 10 or more per project….costs per dam shake out at less than the lower limits (ie. $25k, $15k) shown in your table.

The MNRF completes the above types of studies using funding under our water capital program. This program is historically roughly based on 2% per annum of our total asset value…..see more info in the 2nd attached e-mail I sent you recently. In fact we haven't been getting quite 2%....probably closer to 1%.....simple math/thinking is; 100% of replacement cost/service life of 50 years = 2%/per year…….or 100% of replacement cost/service life of 100 years = 1% per annum.

More info on this topic can be found at;
http://www.lop.parl.gc.ca/content/lop/researchpublications/prb0606-e.htm

APPENDIX A

COMMON CAPITAL COST ALLOWANCE CLASSES

Class number	Description	CCA rate
1	Most buildings made of brick, stone, or cement acquired after 1987, including their component parts such as electric wiring, lighting fixtures, plumbing, heating and cooling equipment, elevators, and escalators	4%
3	Most buildings made of brick, stone, or cement acquired before 1988, including their component parts as listed in class 1 above	5%
6	Buildings made of frame, log, stucco on frame, galvanized iron, or corrugated metal that are used in the business of farming or fishing, or that have no footings below-ground; fences and most greenhouses	10%

Hope this helps

Doug

From: Chris Clark [mailto:cclark@tritoneng.on.ca]
Sent: September-28-16 12:12 PM
To: Ryan, Doug (MNRF)
Cc: Paul Ziegler
Subject: RE: Hillsburgh Dam and Bridge Class EA - Aug 22, 2016 Technical Meeting Preparation

Hi Doug,

I am just finalizing some details on the life cycle costs of each Alternative and was wondering if you could provide some feedback on the attached document for Dam Costs which the CVC (Tyler Slaght) sent me. I want to ensure that most of the steps are accounted for as I want to make sure the Town and Public are aware of the hard and soft costs associated with rehabilitating the Dam.

Thanks,

Chris

Chris Clark, M.A.Sc., P.Eng.

Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 • Fax - (519) 843-1943 • www.tritoneng.on.ca
Cell – (519) 993-7918

From: Ryan, Doug (MNRF) [mailto:doug.ryan@ontario.ca]
Sent: August-24-16 11:55 AM
To: Chris Clark
Cc: Paul Ziegler; McKenna, Tara (MNRF); Cornelisse, Ken (MNRF)
Subject: RE: Hillsburgh Dam and Bridge Class EA - Aug 22, 2016 Technical Meeting Preparation

Chris,

Thanks for the telephone chat and update this morning.

We chatted about the County's role in the EA and permitting. As I mentioned to you, while the County may be only one of many commenting agencies during the EA, when it comes to implementing and permitting they are a property owner and part dam owner (ie. water level control structures are on County land), and the following part of the LRIA Admin Guide will come into play;

Applicants must make every effort to protect the interests of land owners who will be impacted by the proposed works. For instance, where temporary or permanent flooding of land will occur, or riparian rights will be negatively impacted, a formal land tenure document, consent or release from the affected owners must be obtained. Applicants are advised to seek legal advice in this regard.

Formal land tenure documents that are acceptable for registration by a Land Registry Office, may include a flooding easement or sale of land and generally apply where the impacts are expected to be significant. These documents are transferable to new land owners.

In situations where the impact of a proposed work is expected to be minimal, applications may be approved under the LRIA if the applicant obtains the consent of the affected property owner(s). For LRIA purposes, this consent could take the form of a letter signed by the applicant and the landowner(s) that stipulates the following:

1. the landowner has been informed of the nature of the proposal and its impacts;
2. the landowner understands how the current conditions affect their property (specify);

3. the landowner understands that the proposed works will result in a change to current conditions (specify); and
4. the landowner has no objection(s) to the proposed work and hereby provides their consent to the application.

In addition, many Ducks Unlimited Canada (DUC) projects have landowner agreements in place authorizing DUC to flood the land of private land owners in order to create or maintain a wetland.

For options which include work on the County property and dam infrastructure, formal land tenure or consent/release from the County will most likely be required prior to LRIA approval.

I trust this is of assistance.

Doug

From: Ryan, Doug (MNRF)
Sent: August-18-16 5:45 PM
To: 'Chris Clark'
Cc: Paul Ziegler; McKenna, Tara (MNRF)
Subject: RE: Hillsburgh Dam and Bridge Class EA - Aug 22, 2016 Technical Meeting Preparation

Chris

The full suite of LRIA Technical Bulletins are available on; http://www.owa.ca/lakes-and-rivers-improvement-act/

You will probably need the majority of these.

Trust this helps

Doug

PS. Still not 100% sure of whether or not I will be attending the meeting on Monday. I was unable to reach our Guelph District staff today to consult with them.

From: Chris Clark [mailto:cclark@tritoneng.on.ca]
Sent: August-18-16 3:46 PM
To: Ryan, Doug (MNRF)
Cc: Paul Ziegler
Subject: Hillsburgh Dam and Bridge Class EA - Aug 22, 2016 Technical Meeting Preparation

Hi Doug,

As per our conversation this morning, our intention for the meeting on Monday is to approach the technical aspects of the Class EA with Alternatives that are only feasible to the Town. As for questions, I don't have anything specific at this point, however; can you provide a brief summary or a technical document related to the Engineering/Design requirements to acquire an MNRF permit(s) for rehabilitating the Dam (Alt B).

Thanks,

Chris Clark, M.A.Sc., P.Eng.

Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 • Fax - (519) 843-1943 • www.tritoneng.on.ca
Cell – (519) 993-7918

Chris Clark

From: Slaght, Tyler <tslaght@creditvalleyca.ca>
Sent: August-30-16 2:03 PM
To: Chris Clark; 'McKenna, Tara (MNRF)'; Cornelisse, Ken (MNRF)
Cc: Greg Delfosse (Greg.Delfosse@erin.ca); Paul Ziegler
Subject: RE: Hillsburgh Dam and Bridge Class EA - Technical Meeting follow-up
Attachments: Ainsworth Summary Sheet draft.pdf; Dam_Costs.docx

Hi Chris,

CVC staff looked through past projects to provide examples of what you are looking for. Some examples are TRCA that Jon Clayton had worked on before coming to CVC. This information is being provided for internal use only and we do not expect that this would be included as part of the final ESR report. If there is any interest in including this in the report, we would need to think about it further to see if it's appropriate to provide to the public in that fashion. The Dam Costs document is based on what is required of CVC. For any LRIA requirements, please contact MNRF.

Fishway Construction Costs (does not include design costs which were in the $30,000 – $50,000 range)

Denil fishway at Raymore Park on Humber River (approx. 2000) - $120,000
Denil fishway at Board of Trade Golf Club on Humber River (approx. 2001) - $150,000
Step-pool fishway at Palgrave Pond on Humber River (approx. 2001) - $60,000 (appears to only be materials and not equipment costs; includes 15K for viewing windows that now leak and are now closed)
Natural channel/step-pool fishway at Terra Cotta Conservation Area on Roger's Creek (2009) - $150,000
Ainsworth Pond (see attachment) - $25,000

Dredging
Palgrave Pond on Humber River (approx. 2001) – quote to remove 22,000m^3 for (a) mechanical (clamshell) was $590,950.00 and (b) hydraulic (vacuum) was $417,900.00. The disposal site was only a couple of kilometres away so trucking costs were very, very low.

Rattray Marsh Cleanout
Phase 1
Total Project cost: $697,408
Sediment Removed: 3065 cubic meters
Cost per cubic meter dredged and disposed: $160 (quotes came in as high as $275 per meter)

Phase 2
Total Project cost: $1,447,580
Sediment Removed: 5260 cubic meters
Cost per cubic meter dredged and disposed: $153 (quotes came in as high as $205 per meter)

Let me know if you would like to discuss any of these projects further.

Tyler Slaght, RPP
Regulations Officer
Credit Valley Conservation
905.670.1615 ext 406 | 1.800.668.5557
tslaght@creditvalleyca.ca | creditvalleyca.ca

From: Chris Clark [mailto:cclark@tritoneng.on.ca]
Sent: August 23, 2016 11:20 AM
To: 'McKenna, Tara (MNRF)'; Slaght, Tyler; Thompson, Melinda (MNRF); Cornelisse, Ken (MNRF); Ryan, Doug (MNRF); Clayton, Jon; Wong, Jeff; Marray, Liam
Cc: Greg Delfosse (Greg.Delfosse@erin.ca); Paul Ziegler
Subject: Hillsburgh Dam and Bridge Class EA - Technical Meeting follow-up

Good morning all.

Thank-you again for your attendance and/or contribution to yesterday's technical meeting for the above noted project.

As discussed, can you please provide any examples or case studies you may have related to dam/pond mitigation and maintenance costs? Some of the need for costs mentioned at the meeting were related but not limited to the following;

- Dam decommissioning costs (including wetland restoration and rehabilitation)
- Pond dredging/maintenance costs
- Dam maintenance costs
- Dam rehabilitation costs (specific to earthen berms)
- Fish-way construction (ie; fish ladders, bottom draw structures)

Our goal is to obtain enough data to help adequately defend the evaluation and ranking of the Class EA Alternatives.

Thanks,

Chris Clark, M.A.Sc., P.Eng.

Triton Engineering Services Limited
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Tel - (519) 843-3920 • Fax - (519) 843-1943 • www.tritoneng.on.ca
Cell – (519) 993-7918

Chris Clark

From: Ryan, Doug (MNRF) <doug.ryan@ontario.ca>
Sent: August-24-16 9:48 AM
To: Chris Clark
Cc: Cornelisse, Ken (MNRF)
Subject: RE: Hillsburgh Dam and Bridge Class EA - Technical Meeting follow-up
Attachments: Fishways in Ontario.pdf

Hi Chris,

I can offer the following on the items you had inquired about;

- **Dam decommissioning costs (including wetland restoration and rehabilitation)**

I can't provide any guidance on this, but I would suggest that you do a little internet searching for other projects that have considered dam decommissioning in their EA's. The EA reports should document the costs for dam decommissioning and for replacement etc. A few recent examples come to mind;

- CVC's Belfountain Dam (http://www.creditvalleyca.ca/enjoy-the-outdoors/conservation-areas/belfountain-conservation-area/belfountain-conservation-area-management-plan/class-environmental-assessment-for-belfountain-dam-and-headpond-area/)
- Hamilton CA's Crooks Hollow Dam (https://conservationhamilton.ca/crooks-hollow/)
- Cambridge's Riverside Dam on the Speed River (http://www.cambridge.ca/transportation_public_works/engineering_services_division/riverside_dampublic_information_centre)

- **Pond dredging/maintenance costs**

Again, I can't offer any specific guidance on this….we haven't done much of this ourselves, and we often don't see the financials for others projects. You may want to consider recommended maintenance costs for SWM facilities….see the following as an example;
http://www.stormwatercenter.net/Manual_Builder/Maintenance_Manual/6%20-%20Cost%20Data%20in%20Tabular%20Format-NA/cost_frequency.pdf

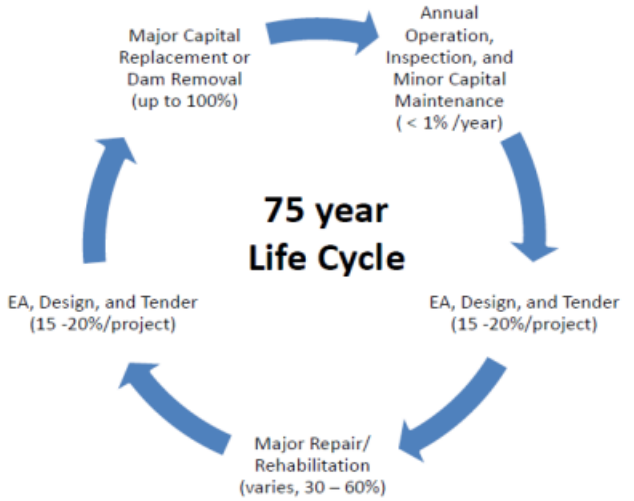
UNIT COSTS FOR STORMWATER TREATMENT PRACTICE MAINTENANCE - DRAFT[1]

Maintenance Item	Unit Price ($)	Unit	Mobilization Cost ($)[2]	Typical Applicability	Maintenance Interval (yrs)[3]
Dam/ Embankment					
unclog internal drains for embankments	10	lf	1500	dry pond or infiltration basin	R (10)
low spots in dam or berm	170	cy	1500	ponds, wetlands, infiltration basins and some filters	R (5)
Sediment/ Debris Removal					
debris removal (preventative)	350	event	0	all surface practices	0.25-1
clear outfall channel of sediment	130	cy	0	all practices that outfall to a channel	5-15
clogged low flow	750	event	800	all practices except bioretention, and infiltration practices	0.25-1
dredge wet ponds (jobs larger than 1000 cy) haul offsite	60	cy	>2500	wet ponds and wetlands	5-15
dry pond sediment removal	7,600	event	0	dry pond or infiltration basin	15-25
dewater pond	900	event	0	wet ponds and wetlands	15-25
muck out undergrounds	390	cy	0	underground proprietary filter systems	0.5-1
dewater and remove sludge from underground facilities	1	gal	0	all underground facilities	0.25-1
typical sediment dump fee (not including trucking)	66	ton	0	all practices	NA
truck day for landfill to transport underground dredge materials (minimum, assume 2 to 4 trips in one day)	800	trip-day	0	all underground facilities	NA

1) These costs were largely derived from data from the Maryland region, based on bid proposal and actual project data.
2) Cost at four levels: $0 for no mobilization; $800 for minimal mobilization; $1,500 for small project mobilization; >$2,500 for large project mobilization. Note that these are approximations. For items with no mobilization cost, it is assumed that the mobilization cost is incorporated into the overall unit cost, or that the maintenance can be completed during inspection.
3) Bottom number in range represents ideal maintenance interval. Top number represents maximum interval between maintenance activities. R indicates repair items, whose frequency is somewhat unpredictable. The frequencies sometimes reported in parentheses represent an estimate of typical repair frequency.

- **Dam maintenance costs**

As Ken mentioned in his e-mail below…..2% of the dam replacement costs can be used as an approximate annual budget for operation and maintenance costs. This allows for less than 2% in some years, and more than 2% in other years where more expensive maintenance is required. For MNRF dam management we also use the following;



5.4.2 Expenditure Plan for Major Repairs

The typical cost of major repairs is currently estimated at 35% of the replacement cost of the dam. Assuming that major repairs would be required only once per dam to extend its service life to 100 years, and applying the same methodology as for major capital, the expected

- **Dam rehabilitation costs (specific to earthen berms)**

MNRF has many types of dams, including earth embankment dams. So far we have not found it necessary to distinguish maintenance costs for earth dams differently than other types of dams.

- **Fish-way construction (ie; fish ladders, bottom draw structures)**

We would have some limited data for fishways constructed by MNRF……from memory for more recent fishways; 1. Fishway at Norval on the Credit River……I think it was in the area of $200k to $250k, 2. Fishway at the Thornbury Dam on the Beaver River…….approximately $1M…….where approximately $5M was spent on rehabilitating the dam. As with the Dam Decommissioning projects, you could probably do a little google searching for recent EA projects….one that comes to mind is the Shickluna Waterpower project;
https://www.stcatharines.ca/en/governin/ShicklunaHydroGeneratingStation.asp

I hope this information helps

Doug

From: Cornelisse, Ken (MNRF)
Sent: August-23-16 1:23 PM
To: Ryan, Doug (MNRF)
Subject: FW: Hillsburgh Dam and Bridge Class EA - Technical Meeting follow-up

Hi Doug,

Would you be able to help with the requested information – see below?

Chris did reiterate the guidance that you provided at the last meeting – that dam maintenance is usually about 2% per year.

Regards,

Ken

Ken Cornelisse
A/ Resource Management Supervisor
Ministry of Natural Resources and Forestry - Guelph District
1 Stone Road West
Guelph, ON
N1G 4Y2
phone: (519) 826-6849
Cell: (519) 830-0822
fax: (519) 826-4929
Email: ken.cornelisse@ontario.ca

From: Chris Clark [mailto:cclark@tritoneng.on.ca]
Sent: Tuesday, August 23, 2016 11:20 AM
To: McKenna, Tara (MNRF); Slaght, Tyler; Thompson, Melinda (MNRF); Cornelisse, Ken (MNRF); Ryan, Doug (MNRF); Clayton, Jon (JClayton@creditvalleyca.ca); 'Wong, Jeff (JWong@creditvalleyca.ca)'; lmarray@creditvalleyca.ca
Cc: Greg Delfosse (Greg.Delfosse@erin.ca); Paul Ziegler
Subject: Hillsburgh Dam and Bridge Class EA - Technical Meeting follow-up

Good morning all.

Thank-you again for your attendance and/or contribution to yesterday's technical meeting for the above noted project.

As discussed, can you please provide any examples or case studies you may have related to dam/pond mitigation and maintenance costs? Some of the need for costs mentioned at the meeting were related but not limited to the following;

- Dam decommissioning costs (including wetland restoration and rehabilitation)
- Pond dredging/maintenance costs
- Dam maintenance costs
- Dam rehabilitation costs (specific to earthen berms)
- Fish-way construction (ie; fish ladders, bottom draw structures)

Our goal is to obtain enough data to help adequately defend the evaluation and ranking of the Class EA Alternatives.

Thanks,

Chris Clark, M.A.Sc., P.Eng.

Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
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Chris Clark

From: Chris Clark
Sent: October-24-16 10:40 AM
To: 'JImhof@tucanada.org'
Cc: dina.lundy@erin.ca; Paul Ziegler; Teresa Hutchison
Subject: RE: TUC Comments - Hillsburgh Dam and Station Street Bridge Municipal Class EA
Attachments: TUC Letter_Town of Erin Hillsburgh Dam and Bridge.pdf; CVCA Comments Hillsburgh Dam - Response 1.pdf; CVCA Comments Hillsburgh Dam - Response 2.pdf; MNRF Comments Hillsburgh Dam - Response.pdf

Good Morning Jack,

On behalf of the Town of Erin, in response to your comments regarding the Hillsburgh Dam and Bridge Class EA, please accept our response to MNRF and CVC comments which are similar in nature to the concerns of Trout Unlimited Canada.

If you have any other questions or concerns, please do not hesitate to contact the undersigned.

Best Regards,

Chris Clark, M.A.Sc., P.Eng.

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Cell – (519) 993-7918

From: Paul Ziegler
Sent: June-15-16 7:14 PM
To: Teresa Hutchison
Cc: Chris Clark
Subject: FW: TUC Comments - Hillsburgh Dam and Station Street Bridge Municipal Class EA

Teresa – Please add to file for Dam EA - Paul

Paul Ziegler, C.E.T.

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From: Jack Imhof [mailto:JImhof@tucanada.org]
Sent: June-15-16 3:59 PM
To: kathryn.ironmonger@erin.ca
Cc: ian.hagman@ontario.ca; Deb Martin-Downs (dmartin-downs@creditvalleyca.ca); Paul Ziegler
Subject: TUC Comments - Hillsburgh Dam and Station Street Bridge Municipal Class EA

Hello Ms Ironmonger:

Please find our comments related to the Municipal Class EA information provided at the Public Information Centre for the proposed work in the Village of Hillsburgh. Trout Unlimited Canada sees a major opportunity to reduce long-term liability to the Town and community and to increase the environmental sustainability of the Upper West Credit watershed with two of the Alternatives considered. Our comments and our response to the ranking system are included in this letter.

We look forward to working with the Town and Hillsburgh community in this project.

Sincerely,

Jack Imhof

Jack G. Imhof, M.Sc. National Biologist/Director of Conservation Ecology,
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