



Canadian Environmental Assessment Agency Agence canadienne
d'évaluation environnementale

*The Canadian Environmental
Assessment Act*

Reference Guide on Physical and
Cultural Heritage Resources



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Canada

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**A Reference Guide
for the
*Canadian Environmental
Assessment Act***

**Assessing Environmental Effects
on
Physical and Cultural Heritage Resources**

Prepared by the
Canadian Environmental Assessment Agency

April, 1996

The reference guide is intended for information purposes only. It should not be perceived as a substitute for the Canadian **Environmental Assessment Act**. In the event of any inconsistency between this guide and the Act, the latter would prevail. Individuals with specific legal problems are urged to seek legal advice.

This guide has also been incorporated to the **Responsible Authority's (RA) Guide**. The RA Guide is available by contacting the Agency. You can also access these documents from the Agency's Internet address:
<http://www.ceaa.gc.ca>

**An Invitation to Users of the
Reference Guide on Physical and Cultural Heritage Resources**

The Canadian Environmental Assessment Agency will update the guide in response to users' comments and needs as they gain experience with the Act. The Agency welcomes comments and suggestions from readers. These should be addressed to:

EA Enhancement & International Affairs
Canadian Environmental Assessment Agency
200 Sacre-Coeur Boulevard
Hull, Quebec K1A 0H3
Tel: (819) 997-1000
Fax: (819) 994-1469

This reference guide is also available in French, entitled:
"Document de référence sur les ressources du patrimoine physique et culturel."

April, 1996

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1. Introduction

Under the **Canadian Environmental Assessment Act** (Act), physical and cultural heritage resources must be considered when undertaking a federal environmental assessment. Heritage has been defined in many different ways by various Canadian and International organizations. Contemporary perceptions of heritage tend to be broad and encompass its various social, economic, political, environmental and cultural dimensions. “Heritage” under the Act covers a wide range of factors in both areas of tangible and intangible heritage resources.

Although it is recognized that both aspects of heritage must be assessed, this guide will focus on describing an approach for assessing the environmental effects of a project on tangible cultural heritage resources in environmental assessments conducted under the Act.

This guide is not intended to replace any methodological manual. It is one of several reference guides intended to provide the supporting documentation for the Responsible Authority’s (RA) Guide to the *Canadian Environmental Assessment Act* prepared by the Canadian Environmental Assessment Agency. All of the reference guides are complimentary to the RA Guide but go into more detail on individual, cross-cutting issues. Specifically, this reference guide:

- discusses the relevant requirements of the Act to consider the effects of a project on tangible cultural heritage resources;
- reviews the concept of cultural heritage resources;
- lists key principles in the assessment of cultural heritage resources;
- proposes a framework to assess a project’s environmental effects on cultural heritage resources under the Act; and
- provides a list of key references on the subject.

As the practice of environmental assessment (EA) evolves, it will be necessary to update and revise both the RA Guide and the individual reference guides. These guides should be seen as “evolving documents” rather than as static textual materials. Any suggestions for updates or revisions should be directed to:

EA Enhancement and International Affairs
Canadian Environmental Assessment Agency
14th Floor, Fontaine Building
200 Sacre-Coeur Boulevard
Hull, Quebec K1A 0H3

2. The *Canadian Environmental Assessment Act* and Cultural Heritage Resources

The Canadian *Environmental Assessment Act* requires that consideration must be given to cultural heritage resources in federal environmental assessments. The Act specifically refers to “physical and cultural heritage” in the definition of “environmental effect”:

“any change that the project may cause in the environment, including any effects of such change.. ., on physical and cultural heritage, on the current use of lands and resources for traditional purposes by aboriginal persons, or on any structure, site or thing that is of historical, archaeological, paleontological or architectural significance”
(Section 2(1)).

The Canadian Environmental Assessment Agency acknowledges that there are two aspects of cultural heritage: tangible and intangible. This guide refers to tangible cultural heritage resources only.

For the purpose of this guide, a cultural heritage resource is a human work or a place that gives evidence of human activity or has spiritual or cultural meaning, and that has historic value. Cultural heritage resources are distinguished from other resources by virtue of the historic value placed on them through their association with an aspect(s) of human history. This interpretation of cultural resources can be applied to a wide range of resources, including, cultural landscapes and landscape features, archaeological sites, structures, engineering works, artifacts and associated records.

Frequently, cultural resources occur in complexes or assemblages. Such assemblages might include movable and immovable resources, resources that are above and below ground, on land and in water, and whose features are both natural and fabricated. It is important to note, from the examples below, that not all valued cultural heritage resources have official designation status and therefore may not always be identified in government heritage registries. They may not even be formally recognized or documented.

Under the Act, a Responsible Authority' (RA) must ensure that an environmental assessment be conducted for a project requiring assessment. As part of the environmental assessment, RAs are required to assess any change on physical and cultural heritage that results from changes in the environment caused by a project. If the changes to physical and cultural heritage are not related to changes in the environment caused by the project, there is no legal requirement to assess these changes. Responsible Authorities can, however, choose to go beyond the minimal legal requirements of the Act. For example, RAs may choose to assess effects on physical and cultural heritage that result from a project but do not result from a change in the environment caused by the project.

Further, subsection 11 (1) of the Act requires that the EA be conducted as early as possible, preferably in the planning stages of a project, before irreversible decisions are made. The Canadian *Environmental Assessment Act* also requires that:

“Every screening or comprehensive study of a project and every mediation or assessment by a review panel shall include a consideration of the following factors:

- (a) the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;***
- (b) the significance of the effects referred to in paragraph (a);***
- (c) measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project” (Section 16(1)).***

Every environmental assessment must consider any effects on cultural heritage resources (including any cumulative effects), resulting from a change in the

¹ A Responsible Authority (RA) is defined under the Act as a federal authority that is required to ensure that an EA of the project is conducted. A federal authority is: a Minister of the Crown, an agency of the Government of Canada or other body established by or pursuant to an Act of Parliament that is ultimately accountable through a Minister of the Crown, any department or departmental corporation or any other body that is prescribed to be a federal authority.

environment caused by that project. The **RAs** may also consider effects other than those which flow from a change in the environment if they consider it appropriate to do so by using their discretionary powers in paragraph 16(1)(e) of the Act.

Examples of Cultural Heritage Resources

- Historical monuments, structures, buildings or groups of buildings (e.g. Halifax Citadel in Nova Scotia; Bethune-Thompson House in Ontario; Quebec City's walls and fortifications; Christ Church Cathedral in New Brunswick; Parliament Buildings in Ottawa);
- Archaeological sites (e.g. Port-aux-Choix in Newfoundland; Archaeological sites along the Chilkoot Trail in British Columbia; Wanuskewin Heritage Park in Saskatchewan);
- Cultural landscapes (e.g. Stanley Park in British Columbia; the Percé Rock in Gaspé; urban cultural landscape of Lunenburg, Nova Scotia);
- Paleontological sites (e.g. Dinosaur Provincial Park in Alberta; Burgess Shale of Yoho National Park);
- Underwater sites (e.g. Shipwreck sites in Red Bay, Labrador and in Fathom Five, Ontario).

It is important to note that there are other vehicles than the Act to assist in the protection of heritage resources. These consist of other federal, provincial, territorial and municipal policies, and/or legislation, for example:

- Archaeological Heritage Policy Framework (Canadian Heritage): ***"... to protect and manage archaeological resources.. ., to achieve a general symmetry with international standards and provincial measures. "***
- Policy on Federal Heritage Buildings (Treasury Board of Canada): ***"To ensure that custodian departments conserve the heritage character of the federal buildings they administer. "***
- Cultural Resource Management Policy, in Guiding Principles and Operational

Policies, Parks Canada (Canadian Heritage): ***"...gives direction to both present programs and future initiatives of Parks Canada. . . . The policy provides national direction for more detailed policies in specific subject areas, and for various parks and historic site management plans. "***

- Heritage legislation (see Appendix 1).

Effects on Cultural Heritage Resources Related to Change in the Environment

- If a project includes dredging at a location where there is an underwater archaeological site, the dredging activity will directly affect the site's cultural heritage resources. In this particular instance, there would be a cause-effect relationship between the biophysical impacts of the project and the effects on cultural heritage resources of the site. If the dredging activity proposed consists of material dumping it may result in the siltation of the archaeological site. Alternatively, if it is the removal of material that is proposed, it may cause the site to be uncovered and valuable cultural heritage resources to be removed or destroyed. Either of these biophysical impacts are considered to be environmental effects within the meaning of the Act and consequently, the cultural heritage component of the project must be assessed.
- Development of federal land will result in the demolition of a heritage building. The environmental assessment must assess the impacts of the project on the heritage building and any other cultural heritage resources found in the project area.
- Building on the federally-owned waterfront at an historic town could affect not only the cultural resources in the area but also alter the density and viewsapes of the area. The impacts of the project on the heritage character of the town must be assessed.

Effects on Cultural Heritage Resources not Related to Change in the Environment

- Shipwrecks of heritage value in a federal harbour have been protected over time from looting through an order issued by the Federal Harbour Master to forbid diving in the harbour, A proposal to divest the federal harbour to a non-federal interest for its continue operation, or for another purpose, will change the legal regime currently in place and eliminate the powers associated with the Federal Harbour Master.

One impact of this will be to eliminate the power to forbid diving in the harbour and therefore this means of protecting the shipwrecks will be removed. Consequently, the integrity of the shipwrecks may be slowly destroyed by the illegal scavenging activities of looters.

3. Key Principles

There are some basic principles which should be considered when addressing cultural heritage resources in environmental assessments. These principles are interrelated, where principles 2 and 3 are important in fulfilling Principle 1. These are:

Principle 1- Cultural Heritage Resources should be examined from a broad perspective.

Any structure, site, or thing may be valued for its historical, archaeological, architectural and paleontological significance. Once initial scoping has established the existence, or potential for, cultural heritage resources it is then important to identify the elements, including the relationships of the cultural heritage resources which contribute to the value of a structure or a site. In some cases, a heritage site may have a symbolic or cultural value that is greater than the value of the physical components of the site. Other sites may be extremely valuable because they inform us of the lives of our collective past as a society, thus inspiring a sense of identity and pride.

Among the key elements which contribute to the value of a cultural heritage resources are integrity and context. Integrity refers to the degree of intactness of

a cultural heritage resource, including the level to which it has been disturbed. Context includes the environment, both past and present, of which the cultural heritage resource is an integral part. It also includes its association and relationship to other cultural heritage resources. A cultural heritage resource may not appear significant on its own but when historical and physical context, thematic representativeness, information content such as richness, cultural and ethnic significance, are considered great insight into the value of the resource may be provided. These elements when included into a description of heritage character for the resource can provide important information to decision makers.

When assessing cultural heritage resources as identified/explained in this guide, contacting experts from organizations which **specialize** in these resources can be very useful in providing insight to decision-makers. Federal authorities requiring assistance in identifying particular issues as well as direction when to know when to request expert advice, should first communicate with the office of the federal Department of Canadian Heritage closest to the project site (refer to Appendix 2). Questions on issues of national scope should be directed to the National Capital Region office of the Department of Canadian Heritage.

As well, a number of these organizations are listed as sources of information in section 4 (Step IA). Some of the questions and issues that could be addressed, include:

- What feature(s) of the site illustrates or testifies to a particular theme?
- Is the landscape surrounding a cultural heritage resource contributing to the value of that resource?
- Is the value of a heritage site limited to the boundaries of the site itself or does it encompass a larger area?
- Is the cultural heritage resource considered to have local, regional or national value?
- Could the scientific potential of the resource make it valuable for cultural heritage research purposes?

Principle 2 - Designated protected heritage sites should be assessed in relation to the mandates, objectives and intents of existing legislation and policies on heritage found at the various government levels (federal, provincial, territorial or municipal). Heritage sites may be specifically designated as protected sites or may be subject to a blanket system of protection either by legislation or by policy. Some valuable heritage sites may not yet even be known to government authorities, i. e., archaeology sites. Further, assessments should extend to Canada's international obligations towards its cultural and natural heritage.

Jurisdiction over heritage is shared among federal and provincial/territorial governments. As part of its mandate, the federal government manages cultural heritage resources on federal Crown lands and waters under its administration. Certain key federal departments have responsibilities for the identification, protection and presentation of cultural heritage resources. In attempting to facilitate coordination of inter-jurisdictional cultural heritage assessment, when the federal interest is involved, the RA should communicate with the regional federal representative for heritage matters (Appendix 2).

These include:

- The Department of Canadian Heritage plays an important role in identifying, recognizing, protecting and presenting Canadian historic and natural sites, notably national parks, national historic sites, historic canals, heritage railway stations and federal heritage buildings. The department also administers other heritage resource instruments, such as a policy framework for the protection of archaeological resources, namely the Archaeological Heritage Policy Framework.
- The Department of Indian Affairs and Northern Development (DIAND) is responsible to ensure that environmental assessments are conducted for projects in the Northwest Territories and the Yukon. The administration of the regulations, however, is delegated to the territorial governments. Outside of the NWT and the Yukon, DIAND administers land covered under the *Indian Act* (i.e. Indian reserves). DIAND's mandate does not specify that it has special responsibilities for aboriginal heritage issues. These issues, however, should be part of any EA, as appropriate.
- The Geological Survey of Canada provides expert advice for the identification and analysis of paleontological resources in Canada. As well,

national collections of type specimens of vertebrate and plant fossils are maintained in their facilities.

- The National Capital Commission (NCC) reviews all proposed heritage designations of federal buildings made by the Federal Heritage Buildings Register Office (FHBRO) within the National Capital Region (NCR). The NCC has the responsibility of making recommendations on the proposed designations to the Minister of Canadian Heritage. The NCC also has approval authority in the NCR over all federal projects (change in land use and design, including demolitions, relocations, etc.) to ensure the preservation of our national treasures in the NCR.

Similarly, provincial responsibilities over heritage matters are also shared by several agencies which have adopted legislation and policies that deal with heritage protection and preservation. Appendix 1 lists the federal and provincial/territorial departments responsible for heritage matters.

Examples of Cultural Heritage Resources

- Mackenzie King Estate has historic value as it was the Prime Minister's residence.
- The National Battlefield Park (Plains of Abraham) in Quebec City has historic value in its testimony to the historic battle between the English and the French for Canada.
- The Grand Lake in Algonquin Provincial Park has become an important site of national pride because of the famous painting by Tom Thompson, who inspired the formation of the Group of Seven.
- The Suffield Military Base in Alberta contains a rich record of Aboriginal archaeological sites in Canada, with over 200 recorded archaeological and heritage sites including significant examples of medicine wheels.

Canada's international obligations concerning protection and conservation of cultural and natural heritage are many and include:

- The convention concerning the Protection of the World Cultural and Natural Heritage (signed in 1972 and ratified by Canada in 1976);
- The Means of Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property (signed in 1970 and ratified by Canada in 1978);
- The Convention on Wetlands of International Importance, especially Waterfowl Habitat (signed in 1971 and ratified by Canada in **1981**), and the Protocol to amend it (signed in 1982 and ratified by Canada in 1983).

For more information on these, and other international agreements contact the Department of Canadian Heritage and the International Council on Monuments and Sites Canada (ICOMOS Canada). ICOMOS is an international non-government organization dealing with the conservation of monuments and sites. It has long-standing experience with protection, conservation, and international legislation on cultural issues.

Principle 3 - The concerns of local governments, property owners and others affected by the project should be considered, including concerns of Aboriginal, ethnic or cultural groups whose heritage is involved. All are an important source of local or traditional knowledge.

The Canadian ***Environmental Assessment Act*** reinforces the benefits of consulting with the public and other stakeholders at the onset of a project (Section 4(d)). Local knowledge can optimize the solutions for community issues and should be considered throughout the assessment.

Many important heritage sites have not been identified or formally recognized. There are sites where archaeological evidence is known to be present but is not visible on the surface or not well recorded or protected. For example, the sacred grounds of Aboriginal peoples may have no evidence of physical activity, but may be associated with the creation of legends, ceremonial functions, personal vision quests, puberty rites, etc. and represent great cultural and/or historical significance. Appropriate stakeholders, professional experts, the public and organisations dealing with cultural heritage matters are all important sources of information in identifying and evaluating these sites.

4. A Framework for Evaluating the Potential Environmental Effects of a Project on Cultural Heritage Resources

In general, an assessment will consist of several procedural steps such as scoping, analysis, determination of significance, development of mitigation measures, and development and implementation of a follow-up program. These steps are iterative rather than linear; circumstances commonly arise during the course of an assessment that require these steps to be revisited. The assessment procedure, including the different steps one has to consider, is captured in a case study provided at the end of this section.

Public participation is a critical element throughout the assessment process and input from the public should be sought from the initial stages of proposed projects. This can be beneficial by integrating local knowledge at the planning phase of projects.

Further, it is important to note that trained professionals in cultural heritage resources should be involved throughout the assessment of the project, as appropriate.

Step 1. Scoping

Effective scoping focuses the EA analysis on relevant environmental issues and concerns arising from a proposed project.

Scoping for cultural heritage resources should consider the following:

A. Identify cultural heritage resources and other relevant information

The first step in a scoping exercise is to identify cultural heritage resources located on- and off-site which potentially could be affected by the project. To do this, it is necessary to assess the potential for the presence of cultural heritage resources first through a site survey or inspection, then identify and evaluate them. This would also provide information on the significance of the cultural heritage resources that may be affected by a project. Once the geographical area and the significance of the resources have been identified, then identification of site boundaries should follow. During this early phase of the project, project site boundaries should remain flexible at least until all cultural resources have been identified and consensus among project team members has been satisfied.

Background information may include historical events and key characteristics of the area, particularly with respect to the culture and important heritage values of those living in the area.

The scientific significance of heritage sites is also an important aspect to be considered when assessing a heritage site. Any sites recognized for their heritage value should be identified in an environmental assessment.

Possible sources of information to assist in identifying potential for or the presence of important cultural heritage resources include:

- lists of national parks, national historic sites, and historic canals (Parks Canada);
- federal and provincial registers of archaeological sites (see Appendices 2 and 3);
- Canadian Register of Heritage Properties (Parks Canada);
- Federal Heritage Buildings Register Office (FHBRO);
- federal and provincial government departments responsible for heritage issues (see Appendix 1);
- aboriginal communities;
- academic and research institutions;
- professional societies and organizations;
- federal, provincial and municipal archives and libraries;
- museums;
- land use plans;
- local citizens or associations involved in the area of heritage conservation and protection; and
- ICOMOS Canada (International Council on Monuments and Sites).

Pertinent questions to ask when identifying cultural heritage resources include, for example:

- What are the main heritage characteristics and resources of the area which may potentially be affected? Is this area, or any part of it recognized to have any heritage or cultural value in terms of archaeology, history, science, architecture, engineering and natural history?
- Was there any exploratory work previously undertaken, in order to identify archaeological sites or artifacts in the proposed project area? Was there any similar type of work done to identify the cultural values of the

proposed project area?

- What was the scope and thoroughness of previous work, and is it adequate for current purpose?

B. Identify spatial and temporal boundaries of the project

• *Boundaries for Cultural Heritage Resources*

Setting boundaries for cultural heritage resources must be planned within the project area. Although in some instances, the cultural heritage resources might be a distance from the core area of the project and might be affected by the project, inclusion of these cultural heritage resources could be considered within the boundaries of the project.

It is important to remember that the Act requires to assess any change on cultural heritage resources resulting from changes in the environment caused by the project. This must be kept in mind when establishing boundaries for a project.

• *Boundaries Associated with Cumulative Environmental Effects*

Cumulative environmental effects is defined as,

“the effect on the environment which results from effects of a project when combined with those of other past, existing and imminent projects and activities. These may occur over a certain period of time and distance.” (RA Guide 1994).

When identifying spatial and temporal boundaries the cumulative environmental effects which could result from the project must be considered. Defining the spatial and temporal boundaries establishes a frame of reference for assessing cumulative environmental effects and facilitates their identification. Such boundaries can also influence the assessment in a variety of ways. If large boundaries are defined, only a superficial assessment may be possible and uncertainty will increase. If the boundaries are small, a more detailed examination may be feasible but an understanding of the broad context may be sacrificed. Proponents may perceive assessments with large boundaries as onerous or unfeasible, whereas the public may think small boundaries do not adequately encompass all of the project's environmental effects.

Also:

- Different boundaries may be appropriate **for different cumulative**

environmental effects. For example, the boundaries selected for cumulative environmental effects on air quality might be quite different than those chosen for effects on cultural heritage resources;

- Spatial boundaries should extend beyond a project's immediate site to include the area likely to be affected;
- Temporal boundaries may extend beyond the timing of construction and operation to include the period of occurrence of the effects.

Most importantly, the boundaries of an assessment should be reasonable. In many cases, it will be appropriate to consult with the affected public in making this determination. Whatever boundaries are set, they may influence the determination of significance, because the effects including cumulative effects of the project on cultural heritage resources may be very significant locally, but of little significance regionally.

C. Men tif y potential en vironmen tal effects on cultural heritage resources

The term "environmental effect", defined in Section 2(1) of the Act, includes the effects on physical and cultural heritage which may result from changing environmental conditions caused by a project. For further clarification on environmental effects, refer to section 1.4 of the RA Guide.

The following questions should be considered:

- Will environmental effects resulting from a project, either beneficial or deleterious to the environment, could adversely affect the cultural heritage resources?
- Are there other past, existing or imminent projects or activities which are currently or may in the future, affect the identified cultural heritage resources? Will these cumulative effects adversely impact the cultural heritage resources?
- Do members of the community demonstrate any concern about the proposed project? How do they value their cultural heritage resources? How will they view their cultural heritage resources being adversely affected by an undertaking?

The responsibility over heritage matters is shared by several jurisdictions and

consultation with other government agencies is an essential aspect of the assessment. The public must also be consulted, preferably in the early planning stages of the project, to ensure that community values and concerns have been considered in an environmental assessment.

Scoping for Cultural Heritage Resources

- It was determined during the scoping phase of the Oldman River Dam project in Alberta, over 300 archaeological sites were identified, of which approximately 170 were potentially being directly affected by the flooding of land in the foothills. The scoping involved both pre-field scoping work and in-field survey, and initial test excavations. The project area was considered by the Peigan as the heartland of their traditional territory.
- The construction of a runway at an international airport, required the removal of an historic parish cemetery dating back to 1833. Further study was necessary to determine the significance of these effects on the historic cemetery and identify possible mitigation measures.

Step 2. Analysis of the Potential Effects on Cultural Heritage Resources

The objective of the analysis is to describe how the potential environmental effects of a project may affect cultural heritage resources. This phase of the assessment should include:

- A description of the nature and current status of the resources, including important characteristics and current assessment of stressors, such as adverse effects of acid rain caused by past and current projects and activities on historic buildings; the natural erosion of an archaeological site; changes to the cultural landscape around a historic church, etc.;
- Assessment of the potential effects the project may likely cause to the cultural heritage resources;
- Consideration of cumulative effects of past, existing and future projects and activities in the proposed project area, all of which may have the potential of affecting the same cultural heritage resources and the overall

heritage value of the area; and

- An analysis of the results of the consultations held with the public and stakeholders.

Early Consideration of Heritage Resources in Environmental Assessment

- **Early** consideration of the potential impact of actions to safeguard **one category** of cultural heritage resources at the Motherwell Homestead National Historic Site enabled action to be taken to safeguard another category of cultural heritage resources. Due to the requirement to provide fire protection, fire hydrants had to be installed on this historic site. The traditional approach would have been to install fire hydrants which required buried water pipes and consequently, the excavation of a large trench through the site. However, by considering all cultural heritage resources in the early planning stages, the project manager changed the project design by employing a horizontal boring device allowing for insertion of the water pipe underneath the cultural layers. In addition to conserving the cultural heritage resources, the need for extensive and costly backfilling and vegetation rehabilitation was also minimized,
- Plans to build a sewage lagoon threatened to destroy the Bernard Site, an archaeological site, on the Tobique Indian Reserve in New Brunswick. Although the potential of the Bernard Site to contribute significantly to Aboriginal history had been **recognized** for many years, it had never been properly investigated. Concerns within the local population over the threat to this cultural heritage resource, in addition to other health and safety factors, developed into strong opposition to the proposed project site. This led the Band Council to determine that an archaeological assessment of the project area was required. The assessment was undertaken using federal and provincial expertise and funds jointly provided by the Band and the **province**. It confirmed the site's value as an important heritage site and also **significantly** raised public awareness of archaeological heritage by **involving the local** community at all levels of the investigation. Ultimately, once all the factors were considered, a decision was made to relocate the sewage lagoon.

Step 3. Determination of Significance of Adverse Effects

The Act requires the RA to determine whether the project is likely to cause significant adverse environmental effects. While consideration of the significance of various forms of physical impacts on heritage resources is important, they must be balanced with a firm understanding of the historic, archaeological and cultural significance of the resources in question. These issues must be explored if mitigation is to be effective which is also a reason to consult with professionals at the onset of a project with a potential of having cultural heritage resources.

In the case where impacts on cultural heritage resources are the only significant impacts identified in the overall context of the project, it is at the discretion of the RA to make a decision on whether the project would be determined to cause significant environmental effects. In making a determination on significance, the following questions should be considered:

- Will the project cause any adverse effects on cultural heritage resources?
 - An adverse effect on cultural heritage resources is one which destroys elements essential to the heritage character or introduces elements that are damaging or detrimental to the heritage character. Table 1 presents examples of adverse effects on cultural heritage resources as a result of a project causing a change in the environment.
- Will these effects be significant in terms of causing any alterations to the state of the cultural heritage resources?
 - The following aspects of the various environmental effects (as they affect cultural heritage resources) should be considered:
 - magnitude;
 - geographic extent;
 - duration and frequency ;
 - reversibility;
 - context.

Table 1: Examples of adverse effects on cultural heritage resources resulting from a change in the environment.

Change in the Environment	Effects on Cultural Heritage Resources
<ul style="list-style-type: none"> • Land disturbance and transformation of natural landscapes (e.g. soil compaction, dredging, digging, filling, clearing, etc.) 	<ul style="list-style-type: none"> • Effects on a conservation area • Effects on special historic or cultural landscapes or site • Damage, disturbance or destruction of archaeological remains or sites • Disturbance of spiritual sites • Spoiling of the setting of heritage building, structure or site
Effects of underground construction	Deterioration of an architectural or historic building or monument caused by vibration
Demolition or construction of buildings or other structures	<ul style="list-style-type: none"> • Destruction of heritage buildings or archaeological sites • Spoiling of the setting of heritage building, structure or site

- Will the project affect the cultural heritage resources in a way that contributes, either additively or synergistically, to existing effects from other past or present projects, or effects that will likely stem from future projects? If so, the significance of these total effects must be considered, regarding the potential to:
 - illustrate historic themes, provide a view on the past, or portray a historical event which occurred in the area;
 - evaluate whether a cultural resource can physically survive the impacts of cumulative effects;
 - educate the public about the value of **our cultural heritage**;
 - **provide for the spiritual and cultural purposes of the site; and**

- promote further research.
- How likely are these effects to occur?

For more detailed information on determination of significance refer to the RA Guide.

Step 4. Design of Mitigation Measures

Consultation with heritage experts is strongly advised to ensure that appropriate mitigation measures for cultural heritage resources are implemented. Although a range of measures could be deployed to mitigate impacts on cultural heritage resources, those chosen must fit the type and scope of a project. Mitigation measures must be technically and economically feasible and could include:

- Re-siting of the project to avoid sensitive areas such as significant sites or areas known to contain cultural artifacts, significant cultural landscape, etc.;
- Changing the project design or construction techniques and technologies to reduce effects of the project on cultural heritage resources;
- Implementing site protection such as stabilization practices, fences, monitoring, etc.;
- Conducting professional rescue archaeology to salvage archaeological resources and their contextual information prior to their damage or destruction;
- Changing site maintenance practices causing damage to historic fabric, e.g. road salt on stone walls.

Mitigating Effects on Cultural Heritage Resources

- The mitigation measures for the Oldman River Dam project in Alberta included the removal of objects and buildings from the development area. As part of the mitigation measures for construction of a reservoir, the Government of Alberta undertook an archaeological mitigation program as required by the *Historical Resources Act* of Alberta. Implementation of the mitigation program was undertaken by professional archaeological consulting firms.
- In the case of a runway project at an international airport, the removal of a historical cemetery was to be carried out in a manner that respects the requirements of the Roman Catholic Archdiocese of the local municipality of the Roman Catholic Cemeteries Board,

Step 5. Follow-up Program

The objectives of a follow-up program are to verify the accuracy of the EA and determine the effectiveness of any mitigation measures that have been implemented. Section 16(2) of the Act requires that all comprehensive studies, all mediation and assessments by a review panel consider the need for, and requirements of a follow-up program. If it is determined that the project is likely to cause effects on cultural heritage resources and that a follow-up program is needed, then monitoring the effects on the cultural heritage resources may be included in the follow-up program.

While consideration of the need for follow-up is required for all but the screening phase of a federal EA, the determination of appropriateness and actual implementation of such a program is left to the discretion of the RA.

CASE STUDY

The Project

A federal/provincial panel was formed to review and assess the proposed construction of a sewage treatment plant and oil-from-sludge facility on Ives Island at Ives Cove off the north end of McNabbs Island near Halifax. The project included the construction of the collector system, an artificial island and a diffuser.

Scoping

Some members of the community felt that the project would result in the destruction and loss of access to the cultural heritage resources through the construction of the artificial island. These resources consisted of a careening yard, a concrete hut associated with Canadian military history, and possibly a Micmac historic site at Indian Point. The creation of the artificial island would also eliminate access to, and possibly destroy, other cultural heritage resources; three wooden shipwrecks in the shallow water off Ives Cove, usually accessible on foot from the beach at low tide. There was concern that the remains of historic vessels in the shipping channel could be lost due to construction of the diffuser.

Analysis

The analysis confirmed that the concrete hut would be completely covered by the artificial island. It was also determined that the shipwrecks would possibly be disturbed by construction activities.

Mitigation measures

The measures proposed to mitigate impacts on land-based cultural heritage resource included testing and excavation by professional archaeologists to investigate cultural heritage resources occurring at the construction sites. Regular inspections were also proposed to ensure that any new cultural heritage resources discovered during construction activities would be assessed and mitigated appropriately using rescue archaeology.

Monitoring

The Panel recommended that Halifax Harbour Cleanup Inc. and the Environmental Effects Monitoring Committee design monitoring programs, as necessary, to provide a well-rounded cumulative effects monitoring program that would address the assimilative capacity of Halifax Harbour over the life of the project.

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APPENDIX 1

**JURISDICTIONS AND MANDATES FOR
ENVIRONMENTAL ASSESSMENT AND HERITAGE**

**JURISDICTIONS AND MANDATES FOR
ENVIRONMENTAL ASSESSMENT AND HERITAGE**

Jurisdiction	Environmental Assessment+	Heritage
CANADA (FEDERAL)	Canadian Environmental Assessment Act Government Organizations Act Indian Act National Capital Act Canada Shipping Act (pending) Canada-Alberta Harmonization Agreement * * Canada-Manitoba Harmonization Agreement * * Gwich' in Final Agreement** (NWT) Inuvialuit Final Agreement** (NWT) James Bay and Northern Quebec Agreement * * Northeastern Quebec Agreement Nunavut Land Claim (NWT) Sahtu Final Agreement** (NWT) Yukon Umbrella Final Agreement**	National Parks Act (National Parks General Regulations) Historic Sites and Monuments Act Heritage Railway Stations Protection Act Cultural Property Export and Import Act Historic Canals Regulations National Capital Act Canada Shipping Act (pending)
ALBERTA	Environmental Protection and Enhancement Act Land Surface Conservation of Reclamation Act * Natural Resources Conservation Board Act Energy Resources Conservation Act Canada-Alberta Harmonization Agreement * *	Alberta Env. Research Institute Act Historical Resources Act Museum Act Provincial Parks Act*
BRITISH COLUMBIA	Environmental Assessment Act Environmental Land Use Act* Environmental Management Act Utilities Comm. Act	Heritage Conservation Act 165 Parks Act
MANITOBA	Environment Act* Canada-Manitoba Harmonization Agreement * *	Provincial Parks Act Heritage Resources Act* Manitoba Habitat Heritage Act
NEW BRUNSWICK	Clean Environmental Act	Historic Sites Protection Act Municipal Heritage Protection Act
NEWFOUNDLAND AND LABRADOR	Environmental Assessment Act*	Heritage Foundation Act Historic Resources Act Provincial Parks Act*

Jurisdiction	Environmental Assessment+	Heritage
NORTHWEST TERRITORIES	Gwich'in Final Agreement** (NWT) Nunavut Land Claim (NWT) Sahtu Final Agreement** (NWT) Inuvialuit Final Agreement * *	Archaeological Sites Regulations (NWT) pursuant to the Northwest Territories Act Territorial Land Use Regulations (NWT)
NOVA SCOTIA	Nova Scotia Environment Act*	Environmental Trust Act Heritage Property Act Historical Objects Protection Act National Parks in Nova Scotia Act' Special Places Protection Act
ONTARIO	Environmental Assessment Act*	Conservation Authority Act Ontario Heritage Act Provincial Parks Act*
PRINCE EDWARD ISLAND	Environmental Protection Act	Archaeological Sites Protection Act Museum Act National Parks Act* Natural Areas Protection Act
QUEBEC	Environmental Quality Act James Bay and Northern Quebec Agreement** Northeastern Quebec Agreement**	Cultural Property Act*
SASKATCHEWAN	Environmental Assessment Act*	Heritage Property Act Provincial Parks, Protected Areas Recreation Sites and Antiquities Act The Parks Act
YUKON	Environment Act (Yukon) Northern Inland Waters Act Settlement Act Yukon Government Umbrella Final Agreement** Western Arctic (Inuvialuit) Claim	Archaeological Sites Regulations (Yukon) pursuant to the Yukon Act

Note:

† legislations which provide for environmental assessments

* defines environment or heritage in terms of human and natural dimension. Modified from **Serafin R. and G. Nelson**, 1991

** Agreements provide for joint federal, provincial and territorial environmental assessment processes.

APPENDIX 2

FEDERAL GOVERNMENT

DEPARTMENT OF CANADIAN HERITAGE

- 1. Regional Contacts for Cultural Heritage Resources**
- 2. Regional Environmental Assessment Coordinators**

DEPARTMENT OF CANADIAN HERITAGE

1. Regional Contacts for Cultural Heritage Resources

HEADQUARTERS (National Capital Region)

Director, Federal Archaeology Office
National Historic Sites Directorate,
Parks Canada
Department of Canadian Heritage
1600 Liverpool Court
Ottawa, Ontario **K1A OH3**
Tel: (613) 993-9692 / Fax: 952-1756

Director, Historical Services Branch,
Parks Canada
Department of Canadian Heritage
5th Floor, 25 Eddy Street
Hull, Quebec **K1A OM5**
Tel: (819) 994-2231 / Fax: 953-4909

ATLANTIC REGION

Regional Manager
Cultural Resources
Department of Canadian Heritage
Upper Water Street,
Halifax, Nova Scotia **B3J 1 S9**
Tel: (902) 426-6115 / Fax: 426-7012

RÉGION DU QUÉBEC

Chef, Histoire et archéologie
Parcs Canada
3, rue Buade, C.P. 6060
Quebec (Quebec)
G1R 4V7
Tel: (418) 648-7723 / Fax: 649-4234

ONTARIO REGION

Manager, Cultural Resource Management
Professional Services
Ontario Region
Department of Canadian Heritage
111 Water Street East
Cornwall, Ontario **K6H 6S3**
Tel: **(613) 938-5900 / Fax: 937-1343**

PRAIRIE and NWT REGION

Manager, Cultural and Natural Ecology
Canadian Heritage
145 McDermot Avenue
Winnipeg, Manitoba

Mailing Address:

8th Floor, 457 Main Street
Winnipeg, Manitoba **R3B 3E8**
Tel: (204) 983-3874 / Fax: 983-0031

ALBERTA, and PACIFIC & YUKON REGION

Senior Archaeologist, Archaeological
Services
Bay 9, 2720 - 12 Street N.E.

Mailing Address:

Room 552, 220 - 4 Ave. S.E.
Calgary, Alberta **T2P 3H8**
Tel: (403) 292-6080 / Fax: 292-6001

2. Regional Environmental Assessment Coordinators

HEADQUARTERS (National Capital Region)

Manager, Environmental Assessment
Natural Resources Branch, Parks Canada
Department of Canadian Heritage
25 Eddy Street, 4th Floor
Hull, Quebec K1A 0M5
Tel: (819) 953-5957 / Fax: 997-3380

ATLANTIC REGION

EA Coordinator
Department of Canadian Heritage
Upper Water Street
Halifax, Nova Scotia B3J 1 S9
Tel: (902) 4268960 / Fax: 426-2728

RÉGION DU QUÉBEC

Coordonnateur de l'évaluation
environnementale
Conservation des ressources naturelles
Patrimoine canadien
3, rue Buade
C. P. 6060, Haute-Ville
Quebec (Quebec) G1R 4V7
Tel: (418) 649-8250 / Fax: 648-4234

ONTARIO REGION

EA Coordinator
Professional and Technical Services
Department of Canadian Heritage
111 Water Street East
Cornwall, Ontario K6H 6S3
Tel: (613) 938-5937 / Fax: 938-5987

PRAIRIE and NWT REGION

Environmental Science and Assessment
Coordinator
Professional and Technical Service Centre
Department of Canadian Heritage
8th Floor, 457 Main Street
Winnipeg, Manitoba R3B 3E8
Tel: (204) 984-5719 / Fax: 983-0031

ALBERTA REGION

Environmental Assessment Sciences
Department of Canadian Heritage
520, 220 - 4th Avenue S.E.
P.O. Box 2989, Station "M"
Calgary, Alberta T2P 3H8
Tel: (403) 292-4438 / Fax: 292-4404

PACIFIC and YUKON REGION

EA Coordinator
Professional and Technical Services
Department of Canadian Heritage
Suite 103, 267 West Esplanade
North Vancouver, British Columbia
V7M 1A5
Tel: (604) 666-0286 / Fax: 666-7957

APPENDIX 3

**PROVINCIAL MINISTRIES RESPONSIBLE FOR
CULTURAL HERITAGE RESOURCES**

PROVINCIAL MINISTRIES RESPONSIBLE FOR
CULTURAL HERITAGE RESOURCES

ALBERTA

Assistant Director,
Archaeology and Ethnology
Provincial Museum of Alberta
Alberta Community Development
12845102 Avenue
Edmonton, Alberta T5B 0M6
Tel: (403) 453-9100 / Fax: 454-6629

BRITISH COLUMBIA

Director, Archaeology Branch
Cultural and Historical Resources Division
Ministry of Tourism, Small
Business and Culture
5th Floor, 800 Johnson Street
Victoria, British Columbia V8V 1x4
Tel: (604) 356-1437 / Fax: 387-4420

MANITOBA

Chief of Archaeology
Historic Resources Branch
Manitoba Culture, Heritage and Citizenship
Main Floor, 213 Notre-Dame Street
Winnipeg, Manitoba R3C 1N3
Tel: (204) 945-4420 / Fax: 948-2384

NEW BRUNSWICK

Provincial Archaeologist
Archaeological Services
Department of Municipalities,
Culture and Housing
P.O. Box 6000
Fredericton, New Brunswick E3B 5H1
Tel: (506) 453-2792 / Fax: 457-4880

NEWFOUNDLAND and LABRADOR

Provincial Archaeologist
Historic Resources Division
Department of Tourism and Culture
Provincial and Historic Sites
P.O. Box 8700
St-Johns, Newfoundland A1B 4J6
Tel: (709) 729-2462 / Fax: 729-0870

NORTHWEST TERRITORIES

Director,
Prince of Wales Northern Heritage Centre
Department of Education, Culture
and Employment Programs
Government of Northwest Territories
Yellowknife, N. W.T. X1A 2L9
Tel: (403) 873-7685 / Fax: 873-0205

NOVA SCOTIA

Nova Scotia Museum
Department of Education
1747 Summer Street
Halifax, Nova Scotia B3H 3A6
Tel: (902) 424-7353 / Fax: 424-0560

ONTARIO

EA Coordinator
Ministry of Citizenship, Culture and
Recreation
2nd Floor, 77 Bloor Street West
Toronto, Ontario M7A 2R9
Tel: (416) 314-7145 / Fax: 314-7175

PRINCE EDWARD ISLAND

Director,
Culture, Heritage and Recreation Division
Department of Education and Human
Resources
P.O. Box 2000
Charlottetown, Prince Edward Island
C1A 7M4
Tel: (902) 368-4784 / Fax: 368-4663

QUEBEC

Direction générale de l'Ouest du Quebec
Direction du patrimoine
454 Place Jacques-Cartier
Montreal, Quebec H2Y 3B3
Tel: (514) 873-2255 / Fax: 864-2448

Direction générale de l'Est du Quebec
Ministère de la culture
2e étage, Bloc C
225 grande Allée est
Quebec, Quebec G1R 5G5
Tel: (418) 643-5780 / Fax: 644-9014

SASKATCHEWAN

Archaeological Resources
Management Section
Heritage Branch
Saskatchewan Municipal Government
32 11 Albert Street
Regina, Saskatchewan S4S 5W6
Tel: (306) 787-5772 / Fax: 787-0069

YUKON TERRITORY

Senior Archaeologist, Heritage Branch
Department of Tourism
Government of the Yukon
P.O. Box 2703
Whitehorse, Yukon Y 1A 2C6
Tel: (403) 667-5983 / Fax: 667-2634