British Columbia Archaeological Inventory Guidelines

Prepared by

Ministry of Small Business, Tourism and Culture
Archaeology Branch
for the Culture Task Force
Resources Inventory Committee

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Abstract

Guidelines for conducting large-scale archaeological inventory studies in British Columbia are detailed. Discussion of the need to rigourously define the research or resource management goals and objectives, outline the past and present physical and cultural landscape of the study areas, and thoroughly conduct field research is included. Recommendations are made for using a combination of judgmental surveying and statistically valid sampling techniques in most situations. A reporting format and mapping standards are included.

Preface

Funding of the Resources Inventory Committee work, including the preparation of this document, is provided by the Corporate Resource Inventory Initiative (CRII) and by Forest Renewal BC (FRBC). Preliminary work of the Resources Inventory Committee was funded by the Canada-British Columbia Partnership Agreement of Forest Resource Development FRDA II.

The Resources Inventory Committee consists of representatives from various ministries and agencies of the Canadian and the British Columbia governments as well as from First Nations peoples. RIC objectives are to develop a common set of standards and procedures for the provincial resources inventories, as recommended by the Forest Resources Commission in its report "The Future of our Forests."

For further information about the Resources Inventory Committee and its various Task Forces, please access the Resources Inventory Committee Website at: http://www.for.gov.bc.ca/ric.

Acknowledgments

These guidelines for archaeological inventories were prepared through a consultation process which included government, academic, and consulting archaeologists, as well as First Nations individuals.

The process was designed and facilitated by Robyn Wark and David Harper of Westland Resource Group. Jim Haggarty of Shoreline Archaeological Services assisted Westland in the technical writing of the standards.

The Steering Committee initially guided development of this document, providing expertise on the content and structure of the guidelines. Steering Committee members are Morley Eldridge (Millennia Research Ltd.), Doug Glaum (Archaeology Branch, BC Ministry of Small Business, Tourism and Culture), Dana Lepofsky (Simon Fraser University), Quentin Mackie (University of Victoria) and Heather Moon (HL Moon Heritage Consultants.).

Others participated in the two-day workshop to draft guidelines: Grant Alphonse, Mike Blake, Jean Bussey, Wayne Choquette, Jack Foster, Tony Hewer, Larry Johnson, Johnny Jones, Michael Klassen, Olga Klimko, Kim Lawson, Steve Lipscomb, Sonny McHalsie, Andrew Mason, Nicole Oakes, Karen Preckel, Dave Schaepe, Fred Sieber, Pradeep Singh, Moy Sutherland and Sean Young.

Steve Acheson, Brian Apland, Dave Hutchcroft, Al Mackie and Ray Kenny reviewed drafts.

Luisa Lazzarotto provided editorial comments.

All who contributed are thanked for their time and efforts.

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1.0 Introduction

In the 1970s, several large archaeological inventory projects were conducted in various regions of the province. The purpose of these studies was to gather baseline information on the location of archaeological sites. Some of the projects were systematic surveys which attempted to record the location and condition of all archaeological sites in a particular setting (e.g., the Gulf Island Shoreline Survey). Others examined the relationships between environmental variables and archaeological site locations (e.g., Kootenay Survey).

The archaeological site location information gathered in the 1970s enabled archaeologists to determine where proposed developments might conflict with archaeological sites. However, by the mid 1990s accumulated changes in heritage legislation, types of industrial development and even newly recognized types of archaeological sites made it clear that there was a need for further archaeological inventory studies. Such studies would improve our understanding of the resource and aid in managing development related impacts to archaeological sites.

These guidelines have been developed so that future inventories will be high quality, reliable and comparable. The guidelines will ensure that government funded, large scale archaeological inventory projects are effective tools for meeting the new needs in archaeological resource management planning and decision making, and will also serve as valuable studies for future research. The guidelines attempt to be clear, flexible and sensitive to specific research and/or resource management goals and local geography.

The guidelines were formulated through a consultation process involving the Archaeology Branch of the Ministry of Small Business, Tourism and Culture, and archaeologists from private consulting firms, academia, and the British Columbia Association of Professional Consulting Archaeologists (BCAPCA), as well as First Nations representatives and resource managers. The process included interviews with archaeologists, resource managers, and First Nations' representatives, a two-day workshop to collaboratively develop guidelines, and a review process for commenting and revising the draft guidelines. The resulting document was edited by the Archaeology Branch to maintain consistency with provincial legislation, as well as branch policy, operational procedures, and inventory related guidelines.

1.1 Purpose

The guidelines were established to ensure that archaeological inventory studies support resource management and future research.

Archaeological investigators are required to follow the guidelines for inventories funded by the provincial government or Forest Renewal BC. Variation from these guidelines will be considered but must be thoroughly addressed in the *Heritage Conservation Act* inspection permit applications for these types of studies.

1.2 Goals and Objectives of Archaeological Inventory

The goal of an archaeological inventory is to identify and record physical evidence of past human activities in a defined study area. Archaeological inventories falling within the context of these guidelines seek to obtain representative information on archaeological site distribution and density from varying physical environments using appropriate and accurately applied sampling methods.

To meet this goal, an archaeological inventory must:

- address an explicit research or resource management objective;
- have a clearly defined scope;
- use an appropriate, thorough survey method; and
- be conducted as a field survey.

Products resulting from the inventory include:

- completed BC Archaeological Site Inventory Forms;
- site location maps;
- detailed site maps; and
- a final report

The final report must include:

- a description of the biophysical and cultural background of the study area;
- an explanation of the methods;
- areas investigated;
- results;
- analysis;
- critical evaluation; and
- summary and conclusions.

A successful and useful archaeological inventory includes the following characteristics:

- explicit research or resource management objectives;
- clearly presented inventory methodology linked to the objectives (e.g., sampling strategy, survey coverage, guidelines for mapping transects, methods for recording negative information);
- accurate data results; and
- a thorough synthesis of previous information and an analysis of trends in site distribution and density within the defined study area.

The guidelines in this manual seek to ensure that future inventories successfully meet the goals and objectives listed above.

2.0 Guidelines for Conducting Archaeological Inventories

Conducting an archaeological inventory involves six key areas:

- consultation with and participation of individuals and organizations with knowledge of archaeological resources in the study area, including First Nations representatives;
- pre-fieldwork data collection and compilation;
- survey design and sampling strategy;
- field survey;
- site mapping and recording; and
- analysis and reporting.

2.1 First Nations Consultation and Participation

Collective experience of the archaeological community has demonstrated that consultation with knowledgeable people, including appropriate representatives from local First Nations, is important to the success of inventory studies. The following guidelines for consultation with First Nations are purposefully broad to accommodate a range of responses. The opportunity for First Nations to consult and participate in archaeological inventory studies is a requirement for projects funded by Forest Renewal BC.

2.1.1 Guidelines for First Nations Consultation and Participation

Provide the opportunity for direct First Nations' input in all phases of project planning, field work, analysis of results, and project administration and maintenance. Sustained involvement with First Nation communities is a primary ingredient in successful archaeological inventories. Such participation can provide:

- unique environmental and cultural perspectives;
- political, administrative and community support;
- critical information on site locations, environmental and logistical knowledge, interpretation of site function, and important oral history; and
- insight into the interpretation of site use over time by community members.

2.2 Pre-fieldwork Data Compilation

Before an inventory is conducted, archaeologists must compile background information to establish a cultural and environmental context for the study area. Background information should include a synthesis of biogeophysical, ethnographic and archaeological information.

This compilation will enable the archaeologist to:

- identify the limits of available data and gaps in existing knowledge;
- evaluate the physical and cultural potential of the landscape;
- assess temporal change to the landscape and the resulting impact on settlement and subsistence patterns;
- formulate cultural land use patterns;
- evaluate previous archaeological studies;

- assess the integrity of the study area; and
- frame research or resource management objectives through an appropriate survey and sampling strategy.

Data collection and compilation tasks must be conducted prior to initiating fieldwork, and should be briefly summarized in the *Heritage Conservation Act* permit application needed to conduct the required fieldwork.

Investigators should use standard, accepted terminology from established disciplines or fields (e.g., archaeology, ethnography, pedology, geology, biology, etc.) when collecting and compiling data.

2.2.1 Guidelines for Pre-fieldwork Data Compilation

1. Conduct a review of relevant environmental and palaeoenvironmental literature and data sources. Data sources may include:
   - soils;
   - relevant palaeoecological studies to determine past environmental conditions that may have influenced cultural adaptations, including the sythesis of Holocene sea levels;
   - vegetation/forest cover;
   - relevant flora and fauna (reflecting adequate time depth);
   - ecosections;
   - biogeoclimatic zones;
   - terrain mapping;
   - archaeological overview assessment studies; and
   - current and past land use patterns.
2. Review ethnographic studies, traditional use/oral history studies, and ethnohistoric literature.
3. Review relevant archaeological literature and data sources.
4. Identify and discuss environmental, palaeoenvironmental, ethnographic, ethnohistoric and archaeological variables relevant to analyzing site distribution and density.
5. Reference sources of environmental, palaeoenvironmental, ethnographic, ethnohistoric and archaeological data used in the study.
6. Integrate pre-fieldwork data collection and compilation into the research design and methodology proposed for use in the archaeological inventory study.
7. Identify all archaeological sites requiring re-recording/information updates.

Other information sources that may be considered as part of the pre-fieldwork data compilation are:

- a review of surficial and bedrock geology;
- a preliminary field reconnaissance (air photograph interpretation or overflight).

A summary of the pre-fieldwork compilation should be included in the *Heritage Conservation Act* inspection permit application.

2.3 Survey Design and Sampling Strategy

Large scale archaeological inventories funded by the provincial government usually fall into one of three categories:

1. gathering baseline data on archaeological site locations in areas where no regional inventory exists;
2. investigating environmental variables and values which may aid in the development of a predictive model for archaeological site locations within an archaeological overview assessment
3. testing the results of an existing archaeological overview assessment.

Recommended sampling strategies for these inventory studies are outlined in Table 1.

Table 1. Recommended sampling strategies

Purpose of survey	Recommended sampling strategies
Baseline data on archaeological site locations	Total coverage survey Random sampling strategy Stratified sampling strategy
Investigating environmental variables and values for a predictive model of archaeological site locations	Sampling stratified by variables and/or interval values within variables.
Testing the results of an existing archaeological overview assessment study	Stratified sampling strategy to test modelling variables

These recommendations are derived from the discussion of sampling strategies found in Appendix A.

Thirty to forty per cent of the fieldwork for recent large-scale inventories has been devoted to judgmental survey. This approach allows an examination of specific areas of interest. Provisions for judgmental surveying are encouraged, but should be distinguished from statistically rigourous sampling.

Study methodology will form the majority of the *Heritage Conservation Act* inspection permit application. Within the application, the investigator should define the purpose, scope and goals of the project; including specific research or resource management questions. The relationship between field methodology and research goals and objectives must be explicitly stated. The application also must include methods for data collection, recording and reporting.

In addition to selection of target areas, consideration must be given to surface survey and subsurface sampling techniques. Examples of different field approaches for varying environmental factors are found in Table 2.

Table 2. Examples of field methods under varying environmental conditions

Environmental factor		Field method
Resource visibility	High (provide evidence for high rating)	Foot traverse, including control sites with subsurface testing
	Low	Systematic subsurface testing
Slope	Steep	Examine entire slope with focus on top, base and remnant terraces. Also include small, flatter landforms in canyons, and erosional gullies for materials that originate from the top of slope.
	Moderate	Consider local environmental characteristics (e.g., solar and wind exposures)
Microtopography		In Northeast BC, investigate very small knolls, hummocks, shallow breaks in slope
Drainage	Well drained	Intensive shovel testing
	Poorly drained	Test exposures or vicinity of known sites. Map exposures (e.g., roads, cutbanks, borrow pits, trails)

2.4 Site Mapping and Recording

Site mapping and recording standards are essential for conducting archaeological inventories. Archaeologists should ensure that survey areas and sites are precisely and accurately mapped, so that research or resource management projects can build efficiently on the results of previous studies. Consistent mapping will make it easier to use the results from inventory studies for a variety of needs.

2.4.1 Guidelines for Site Mapping and Recording

Three categories of maps can be anticipated in reporting the results of an archaeological inventory study. These, from broadest to most detailed, are project overview mapping, detailed survey mapping and archaeological site maps. Regardless of category, all mapping must include:

- title
- date
- mapping scale with bar scale
- true or magnetic north arrow (include declination for true north arrow)
- legend
- map base source (e.g., TRIM #, NTS #, CHS # including NAD Datum)
- georeference grid
- hydrology
- roads
- appropriate cadastral information.

Project Overview Mapping

The purpose of project overview mapping is to orient the reader to the general study area, and should clearly display:

- areas investigated;
- type of survey; and
- sites located.

Project overview mapping should be presented at the 1:50 000 or 1:20 000 mapping scale using the NTS or TRIM series as base maps. Mapping symbols must be consistent with the base mapping series and the additional symbols found in Appendix B in order to describe types of survey and archaeological site locations.

If more than one project overview map is required to display the study area, each map must show its relationship to the entire study area. If many project overview maps are required to show the entire area, a general map at a coarser mapping scale (e.g., 1:250 000) may be necessary, displaying only areas investigated.

Survey Mapping

This type of mapping should display the methods and results of investigations for each sampling unit surveyed. Mapping scales are commonly 1:20 000 or 1:5000. Each map should show:

- boundary of the surveyed area;
- position and direction of surface survey transects;
- areas and intensity of subsurface tests;
- locations of recorded archaeological sites;
- access points;
- micro-environmental features;
- opportunistic exposures;
- boundaries of investigated variables; and
- relationship of map to survey overview map.

If systematic subsurface testing along pedestrian transects is employed, this should be explained in the map legend but individual shovel tests do not need to be shown on the mapped transect. If subsurface cluster sampling is used, the area and number of tests should be labelled on the map and the type of test explained in the map legend. All labels should be consistent with the report text. Archaeological site

locations should be portrayed as points (triangles) or, if larger than 100 metres in at least one dimension, as lines or polygons.

Site Maps

Two maps are required for each archaeological site recorded; a site location map displaying the site location at the 1:50 000 or 1:20 000 mapping scale, and a detailed site map indicating site boundaries, major surficial archaeological features and associated modern cultural and environmental features. Detailed requirements for archaeological site mapping are contained in the *British Columbia Archaeological Site Inventory Form Guide*.

A Note on Field Maps

Field maps form part of the permanent record of the archaeological inventory study. Clearly show the location of all survey transects and quadrats on 1:5000 scale field maps. Maps should also contain contour lines.

Digital Mapping Requirements

As of February 2000, the Ministry of Forests is developing a digital tracking system to determine where archaeological field studies, including inventories, have taken place. Should this system be completed, digital project overview mapping consistent with the tracking system requirements will be mandatory.

Investigators are encouraged to contact the Archaeology Branch web page to ascertain if the applicable digital standards have been developed.

Site Recording

Site survey includes the complete documentation of each identified site. All archaeological sites in British Columbia are recorded on standard site inventory forms available from the Branch.

The *British Columbia Archaeological Site Inventory Form Guide* must be consulted when recording archaeological sites. This manual identifies the kinds of information to record and the procedures to follow in completing site inventory forms. Site forms should include a description of site characteristics, along with a map of the site drawn to scale. The map should illustrate the arrangement of site features, as well as the location of the site relative to the nearest recognizable and permanent landmark. Since these sites are often situated in remote areas, the map must be drawn in sufficient detail to allow easy relocation in the field. Legal descriptions should be provided wherever possible.

Site recording should also include a thorough description of all observed cultural materials. It is recommended that a representative selection of diagnostic artifacts or features be drawn to scale or photographed *in situ*. Drawings and photographs should be included with the inventory form.

In cases where it is impossible to fully describe very large sites, emphasis must be placed on establishing site boundaries and describing the spatial, temporal and morphological variability and proportions of the site and its features.

Once completed, site inventory forms must be forwarded to the Branch. The Branch will assign a "Borden" identification number to each site and subsequently notify the proponent and/or his archaeological consultant as to which numbers have been assigned. Since Borden numbers can only be assigned by Branch staff, temporary site numbers must be used in the field.

3.0 Recommended Format for Archaeological Inventory Reports[1]

Archaeological inventory reports should be presented in a consistent format, for ease of reading, comprehensiveness and comparability. The following section provides a detailed standardized format for archaeological inventory reports.

Title Page

The title page should include:

- the official project name and location;
- the type of archaeological resource assessment
- the number of the permit or ministerial order under which the research activities were authorized;
- the name and address of the agency for which the report was prepared;
- the report date; and
- the author's signature and title.

Credit Sheet

The credit sheet should contain the names, addresses and professional affiliations of the principal contributors to the overview study including:

- the director or supervisor;
- researchers; and
- report author.

Management Summary

The management summary should contain a brief overview of the study. Important findings should be emphasized.

Table of Contents

The table of contents should be arranged in accordance with the sequence of topical headings and their corresponding page numbers.

1.0 Introduction

The introduction must include:

- the general nature of the project;
- a brief statement of the objective(s) and scope of the inventory;
- the persons conducting the inventory and the kinds of professional expertise involved; and
- the dates and duration of the study.

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[1] Numbering within this section follows the recommended report format for archaeological inventory reports.

2.0 Study Area

This section should contain a brief description of the project area. Emphasis should be placed on relating the study area to the natural and cultural environments. Description of the study area should include:

- biophysical features such as physiography, drainage, fauna, and flora;
- a discussion of past and present ecological conditions that bear upon human settlement and land use;
- a review of relevant information from published and unpublished sources such as local and regional history, prehistory and ethnography, with and emphasis on reconstructing patterns of past land use, settlement and subsistence;
- present land use;
- the condition of the land, particularly the extent of alteration from agricultural activity, forest harvesting or other intensive land uses;
- a review of previous archaeological research, planning, inventory and assessment studies; and
- weather conditions and patterns, particularly as they affect the conduct and scheduling of fieldwork.

3.0 Methodology

The basic inventory plan and the precise methods and equipment used to implement the plan should be outlined in this section. The relationship between the research or resource management goals, research design and methodology must be explicitly addressed. Methodological discussion should include:

- a thorough account of the sampling design, particularly sample selection and size, including an overview of the expected range of site types and site sizes, and the influence of confounding factors;
- a description of the rationale underlying any stratification of the study area, according to archaeological potential, and the level of survey in these strata. This must include an estimate of the number of hectares within each strata, the sampling rate and percentage, and number of sampling units within each strata. Include descriptions and explanations of deviations from this methodology;
- the number of surveyors, the manner in which they were deployed over the survey area, including distance intervals and direction of travel, and the amount of time spent surveying any one area. Include a brief description of crew composition (e.g., positions of experienced, inexperienced and trainee crew members). The coverage achieved for each sampling unit should be presented in a summary table;
- locations of areas exempt from survey within a sampling unit, and areas exempt from the sampling universe;
- subsurface testing frequencies, location, interval spacing and test dimensions;
- site recording practices; and
- sources consulted in designing the site inventory strategy.

4.0 Resource Inventory

This section should contain results of the archaeological site inventory including:

- project overview maps showing all recorded archaeological sites in the study area;
- detailed survey maps showing each sampling unit surveyed;
- the number and types of archaeological sites recorded, and an indication of the generally anticipated total in the study area;
- an explanation of the use of a functional site typology, and its relation to the descriptive typology used in the *British Columbia Archaeological Site Forms Guide*;
- a brief narrative and/or tabular description (tables if n > 5) of each site including its present condition and use, relevant distinguishing features, and general relationship to the regional environment and cultural setting;
- qualitative and quantitative summaries of all cultural materials and features observed or collected;
- an interpretation of the archaeological resource inventory including observed spatial patterning of sites in the study area, temporal, functional and contextual characteristics, and comparisons with other local or regional resources;
- critical comparison of the spatial patterning of archaeological sites within the study area to the results of overlapping, adjacent or related archaeological studies;
- an explanation of negative results, such as where and why archaeological sites were absent in areas suspected of having moderate to high resource potential;
- an explanation of unanticipated positive results when sites were present in areas suspected of having low potential; and
- any further predictions concerning potential variability, density, distribution and importance in the project area.

5.0 Summary and Conclusions

This section should contain a critical evaluation of the inventory study. The discussion should address:

- The accuracy of overview predictions regarding archaeological resource density, distribution, variety and significance in the study area;
- the suitability of the inventory strategy and site survey techniques employed, as well as the level of confidence that can be placed on the survey results;
- the relationship between the results and stated objectives of the inventory study, including problem-oriented research or resource management objectives; and
- appropriate research or resource management goals, objectives or opportunities for subsequent archaeological studies in the project area.

References Cited

A comprehensive list of all literary sources (publications, documents and records) cited in the report should be presented in this section. The reference list should also include names and dates of all personal communications.

Appendices

A variety of items should be appended to the report, including:

- a list of all recorded archaeological sites, referenced by their final Borden number, identifying any site forms in need of updating; and
- appropriate tables, charts, graphs, maps, photos and other supportive materials.

Appendix A. Guidelines for survey methods

Method	Guidelines
Total coverage survey (defined as the systematic examination of contiguous blocks of terrain at a uniform level of intensity[2])	Appropriate for: • initial inspection method in unknown areas; • providing baseline archaeological data; • setting up modelling strategies; and • small areas.
Random sample	Appropriate for: • homogenous area with limited number of variables; and • areas with too many variables.
Stratified sample (The most common methodology is a combination of stratified sampling and judgmental survey)	Appropriate when: • certain characteristics are known that could affect site distribution; • surveying large study areas with clearly defined strata; and • seeking to ground truth predictive model maps. Survey could be stratified using a range of factors, including environmental criteria, ethnographic data, including Traditional Use Data. Survey design must explain why stratification approach was used, noting explicitly the stratification criteria. Do not be restricted to using environmental criteria if other, additional data are available. Methods must be appropriate to support employed statistics and derived inferences.
Judgmental survey	Appropriate for: • ground-truthing community information; • examining areas with limited access; and • training field staff in field methods.

[2] S. Fish and S. Kowalewslei (eds.). 1990. The archaeology of regions: a case for full-coverage survey. Smithsonian Institution Press, London, UK.

Appendix B. Mapping symbols

1. Standard Map Symbols for Project Overview Mapping

Pedestrian Survey

Vehicular Survey

Boat Survey

The different types of survey should be readily distinguishable. Several mapping approaches were examined, but the most favourable was the use of solid lines in contrasting colours.

Archaeological Site*

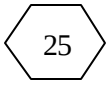
CMT Site*

2. Standard Map Symbols for Detailed Survey Mapping

Survey Boundary

Surface Survey Transects
(In the legend include interval and start point for systematic subsurface testing)

Area and Number of Shovel Tests
(For cluster sampling)



Archaeological Site*
(Label with Temporary Site No. or Borden No. Sites that are sufficiently large should be represented as polygons labelled by Site No.)

CMT Site*
(Label with Temporary Site No. or Borden No. Sites that are sufficiently large should be represented as polygons labelled by Site No.)

* If colour is used, sites are indicated in red.

3. Standard Map Symbols for Archaeological Site Maps

Archaeological Site Boundary

Cultural Depression

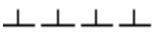
Artifact (Code and Number)

Culturally Modified Tree

Shovel Test
Negative/Positive

Soil Probe Test
Negative/Positive

Base/Toe of Slope



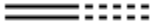
Crest of Slope

Standing Structure

Collapsed Structure

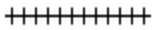
Trail

Road

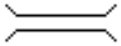


Fence

Railway



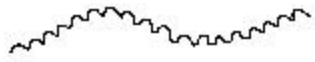
Bridge



Datum (survey/benchmark)

Tree

Vegetation Extent



River/Creek

Marsh/Swamp