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Canadian Archaeological Association
Association canadienne d'archéologie

Recommended Pathway for Locating Unmarked Graves Around Residential Schools

The Canadian Archaeological Association (President, Dr. Lisa Hodgetts) has struck a working group on unmarked graves (Chair, Dr. Kisha Supernant, Métis). We have posted preliminary technical guidance for communities on the CAA website (Resources for Indigenous Communities Considering Investigating Unmarked Graves | Canadian Archaeological Association / Association canadienne d'archéologie (canadianarchaeology.com). We plan to develop further guidance, including information on technical issues for using remote sensing to locate graves.

This document can be used as a guide to develop a Scope of Work that focuses on the application of remote sensing to locate unmarked graves associated with Indian Residential Schools (IRS) and at related institutions. It provides recommendations to consider, focusing on remote sensing, including ground penetrating radar (GPR). It is not a template for deliverables or costing, but rather a guide to a series of steps for this complex task. We recommend further guides be developed for each step in the search for unmarked graves in residential school contexts. Any inquiry into missing children in residential school landscapes should begin with the Truth and Reconciliation Commission (TRC) of Canada's final report, especially Volume 4 and Calls to Action 71-76.

We recommend several key foundational principles in the search for unmarked graves of missing children:

- Any work to locate missing Indigenous children must be led by Indigenous communities. Indigenous communities should be supported to build capacity to do the work themselves without having to rely on outside experts.
- Remote sensing is not necessary to know the truth of the existence of unmarked graves of missing children in Canada and at specific residential school locations. Remote sensing methods can sometimes be used to show specific locations of those unmarked graves. Remote sensing cannot locate all children who died at or went missing from residential schools.
- Remote sensing should not be the first step in any effort to locate missing children. Several steps should be undertaken first, and each step requires specific skills. It is unlikely that any individual or entity would be able to undertake all the steps.
- Remote sensing cannot provide 100% assurance of the presence or absence of a specific grave. It can provide a range of confidence in grave identification depending on the context. Most remote sensing of graves has been undertaken

in formal cemetery contexts but locating unmarked graves of children may be complicated by different types of burials and their smaller size. Further refinement of remote sensing techniques is needed to improve the application of these techniques to less formal burials. The CAA Working Group is developing technical guidance on these issues.

Recommended Components

The following is a set of steps that we suggest communities consider if they wish to use remote sensing to search for unmarked graves of missing children. The selection of any step is optional and the order of steps is up to each community. For example, memorialization could happen at any stage. At every stage, decisions to proceed with further work rest solely with the Indigenous communities involved. This document does not replace the need for contracts/agreements with deliverables, costs, research design, training, and data sharing agreements to be established.

1. Community-based Work
The effort to locate missing children must be Indigenous-led and must follow the permissions and protocols of Indigenous communities. We have identified the following essential considerations:

- Outreach, permissions, introductions, ceremonies, and protocols should be adhered to. The TRC recommends that the community most impacted by a residential school should take the lead, and all communities with children who died or went missing from each school be involved in decision making.
- Training for community members to understand remote sensing techniques is important. Some communities may wish to develop training so that community members can conduct remote sensing surveys.
- Training for survey teams in community protocols is necessary.
- Data agreements and data management principles should be agreed upon.
- A scope of work contract or agreement specific to each community should be developed, disseminated, and agreed upon with Indigenous leadership and survivors from that community. Such agreements should follow OCAP principles.

2. Survivor Wellbeing Supports
Efforts to locate missing children are likely to re-traumatize residential school survivors, their families, and communities. Necessary support must be in place in advance of such work.

- Spiritual, emotional, mental health, and physical support for individual well-being should be in place.
- Community ceremony/healing practices should be recognized and funded.
- Preparatory, continuing and ongoing (after the event) support for community and survey teams will likely be needed.

3. Archival Research
Considerable information on the location of missing children exists in archival records including those held by communities, by the NCTR, and by governments and churches. Communities are encouraged to seek archival data from all relevant sources. Some organizations that hold relevant information have not released it to communities seeking to locate their missing children and it is important that they do so immediately. Archival research is a complex endeavor. The National Center for Truth and Reconciliation (NCTR) is developing a more detailed guide to this work.

- Collection and analysis of archival documents, including school records.
- Collection of building plans/archival maps.
- Development of secure and accessible archives following OCAP principles.
- Implementation of long-term storage plans for archival data and for any emergent data.

4. Community/Survivor Knowledge
Survivors have knowledge of the location of missing children. Recalling this information can be deeply traumatizing. Where survivors are willing to provide further testimony, supports and recording protocols, such as developed by the TRC, must be implemented.

- Identifying the location of missing children through survivor testimony.
- Provide survivors and their families with necessary supports.
- Develop and implement appropriate recording protocols.

5. Spatial/local Database Development
The location of missing children includes the compilation and analysis of spatial data. A secure and formal system of archiving and analysing both quantitative (e.g. documents and maps) and qualitative (e.g. survivor testimony) evidence must be developed. Such work is commonly done using a Geographical Information System (GIS) platform.

- Development of a culturally-appropriate spatial archive and analytical platform such as a GIS.
- Compilation of archival and survivor knowledge into a spatial frame.
- Assessment of landscapes for likely locations of missing children.

6. Area Mapping
Investigation of the landscapes within which missing children might be buried is complicated. Many areas have changed through time, so information about the history of land use, geology, and development is needed.

- Compilation of geological conditions that influence the location of missing children and can impact remote sensing methods.
- Compilation of recorded impacts such as construction, prior archaeological work, and other landscape modifications.
- Creation of a detailed surface topographic base map of the residential school landscape. We recommend the use of UAV (drone) LiDAR as a valuable method to create a digital elevation model (DEM) of the current landscape. Burial locations can include surface contour patterns that are visible in high resolution DEMs.
- Walkover survey by the entire research team, including survivors if they wish, to approach the land in a culturally respectful manner, gain familiarity with the

physical landscape and the former layout of buildings and other features, and work with communities to select priority locations for remote sensing.
- Location preparation including removal of obstacles, and clearing of vegetation in areas identified for remote sensing investigation, being careful to not remove evidence of old grave markers that might remain hidden in the vegetation.

7. Subsurface Remote Sensing Fieldwork

Ground-penetrating radar (GPR) is well-established as a reliable method for the identification of burials in cemeteries. Other applicable methods include magnetic and electrical resistance tools, although these have been used less frequently. Remote sensing approaches typically proceed in two steps: 1) prospection (the initial assessment using a wide-area approach to identify potential areas of interest) and 2) investigation (detailed study of high potential areas, usually via rectangular grids). Local ceremonial protocols should be observed when conducting any such work.

- Subsurface methods
    - Ground-penetrating radar (GPR) uses reflected and refracted electromagnetic waves (radar waves) to map subsurface sediment patterns or buried objects. GPR allows for the identification of these patterns by size, shape and depth. When applied to a burial context, GPR typically identifies the grave shaft rather than its contents.
    - Magnetic techniques identify objects with magnetic signatures, e.g. heated materials, metal objects such as coffin hardware, slight changes in grave shaft composition, headstones, and other burial practices. Depth is difficult to map using these methods.
    - Resistivity can also identify the size and depth of potential graves based on the pattern and intensity of electrical signals passing through the ground.
- Each method captures different kinds of geophysical information, employs different forms of data collection and relies on established data collection and recording parameters.
- Each method also requires post-collection data processing, to identify anomalous signals.
- The interpretation of anomalous signals as having a particular cause, such as a burial, requires reference to established logic and interpretive models based on previous research. Such interpretative tools exist for formal cemeteries and are in development for informal areas such as clandestine burials.
- Multiple remote sensing approaches can work together to provide better guidance for the location of burials. Results from each technique can be compared to each other and to additional lines of evidence within a spatial archive, such as a GIS, to provide the most comprehensive assessment of the location of unmarked graves.

8. Communication of Results

Communication of results of remote sensing typically proceeds through formal presentation of results in a final written report to communities. Given the complex nature of the task of locating missing children, we suggest caution in the release of preliminary findings of remote sensing work.

- Final report submission should take place at the completion of all field work in a specific location. Reports should include a summary of preparatory work, prior evidence, survey design, data collection parameters, an assessment of the relevant characteristics of the landscape, interpretive logic, taxonomy of identified anomalies, evaluation of confidence, and a complete inventory of all anomalies. Reports should include maps of the locations of anomalies, but communities might wish to keep this information confidential. Reports should be written in accessible language.
- This should include a presentation to the community of the final report results in accessible language.

9. Memorialization

The location of missing Indigenous children who died as a result of Canada's Indian Residential School system should be appropriately memorialized as defined in the TRC's final report and as decided by the communities whose children may be buried in these locations.

Optional Additional Steps

10. Possible Excavation and Forensic Work

Some communities will wish to confirm the identification of burials using excavation. Some will also wish to exhume missing children for identification and appropriate reburial. Some communities will not wish to take such steps. Moving forward with excavation and/or exhumation can be a difficult process. Children at each school were taken from multiple communities, and not all of those communities may wish to proceed in the same way. It is not possible to determine who is in an unmarked grave and therefore which community they are associated with, without further examination, including but not limited to DNA analysis.

Further, the excavation and recovery of human remains requires consideration of both heritage and medico-legal legislation and policy by province or territory. In most cases, a forensic anthropologist (an anthropologist with specialized training) is required as there are potential legal implications in such work. Forensic anthropological work and the analysis of the skeletal remains of individuals is a complex endeavor. The Canadian Association of Physical Anthropologists (CAPA) is developing a resource guide explaining the kinds of questions that can be answered through skeletal analysis.

Possible options for communities to consider include:

- Confirmation of potential unmarked graves found using remote sensing may be possible using near-surface excavation to locate the grave shaft but not the ancestral remains. The individual is not seen or removed, the soil is returned to the area and the grave confirmed on the associated map.
- Exhumation of individuals to permit forensic anthropological analysis. Such work can have implications in criminal investigations and must follow relevant provincial/territorial policy.
- If individuals can be identified, either through a grave marker or DNA analysis, it may be possible to return missing children to their home communities for reburial in a culturally appropriate manner.