

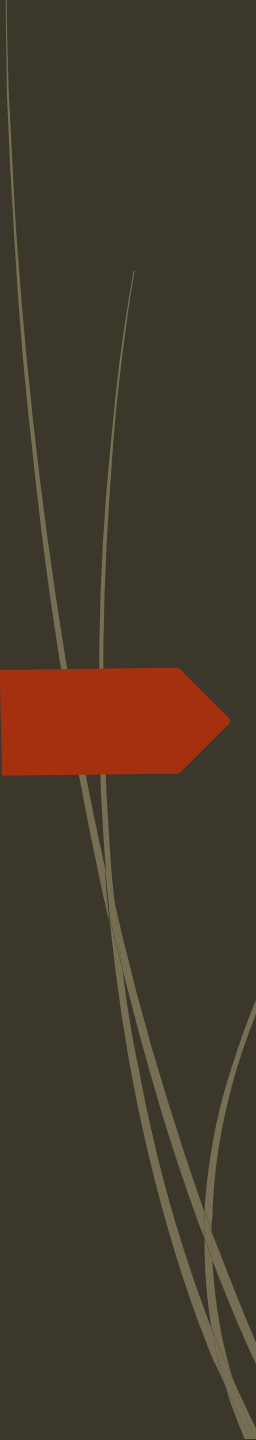


Ground-Penetrating Radar Best Practices



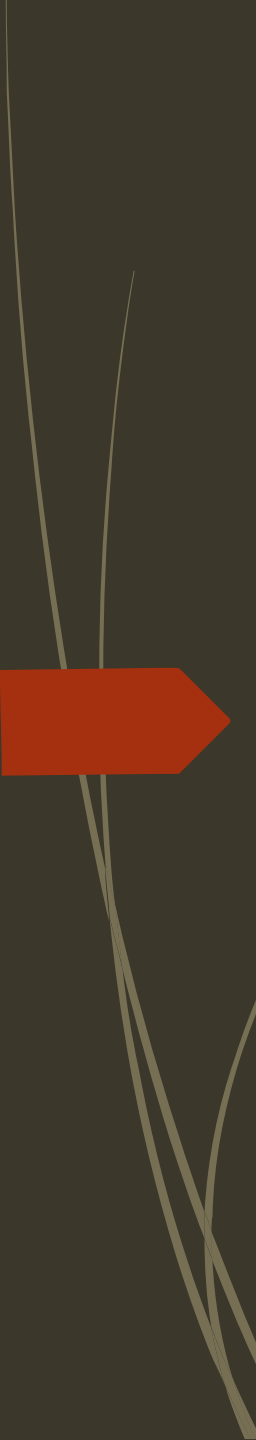
Dr. Sarah Beaulieu

Ground Penetrating Radar Specialist



Ground - Penetrating Radar Preliminary Survey: Road Map for Today's Presentation

- ▶ Cultural Protocols
- ▶ Knowledge Keepers Oral Tellings
- ▶ Common Features of a GPR Survey
- ▶ GPR Analysis and Interpretation
- ▶ Tk'emlúps te Secwépemc Case Study



Ground - Penetrating Radar Preliminary Survey

- ▶ Remote sensing such as GPR is not necessary to know that children went missing in Indian Residential School contexts. This fact has been recognized by Indigenous communities for generations.



Government and Church Archives

Canada's Truth and Reconciliation Commission's
Final Report

Missing Children: 4000 – 6000+

**Remote sensing
such as GPR,
merely provides
some spatial
specificity to this
truth**

Indigenous Values, Ceremonies
and Methods

Cultural Protocols


Cultural Monitors

Knowledge Keepers & Oral
Histories

Cultural protocols
are as important
as the science
behind ground-
penetrating radar



Ground - Penetrating Radar Preliminary Survey




- **GPR Terminology**
- **Subsurface Anomaly:** an irregularity noted below the surface
- **Target of Interest:** an increased index of suspicion of being the object of the search

There are numerous factors to consider when analyzing GPR data from a burial context:

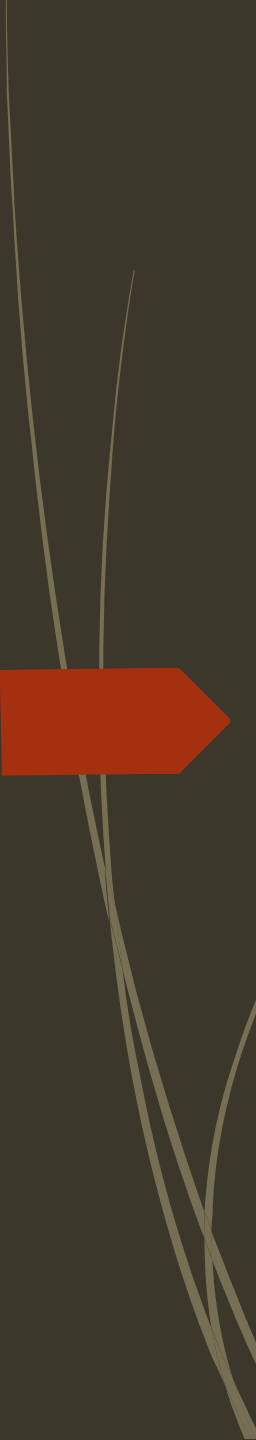
Type of Burial

Date of Burial

Depth of Burial



**Ground-
Penetrating
Radar
Preliminary
Survey**

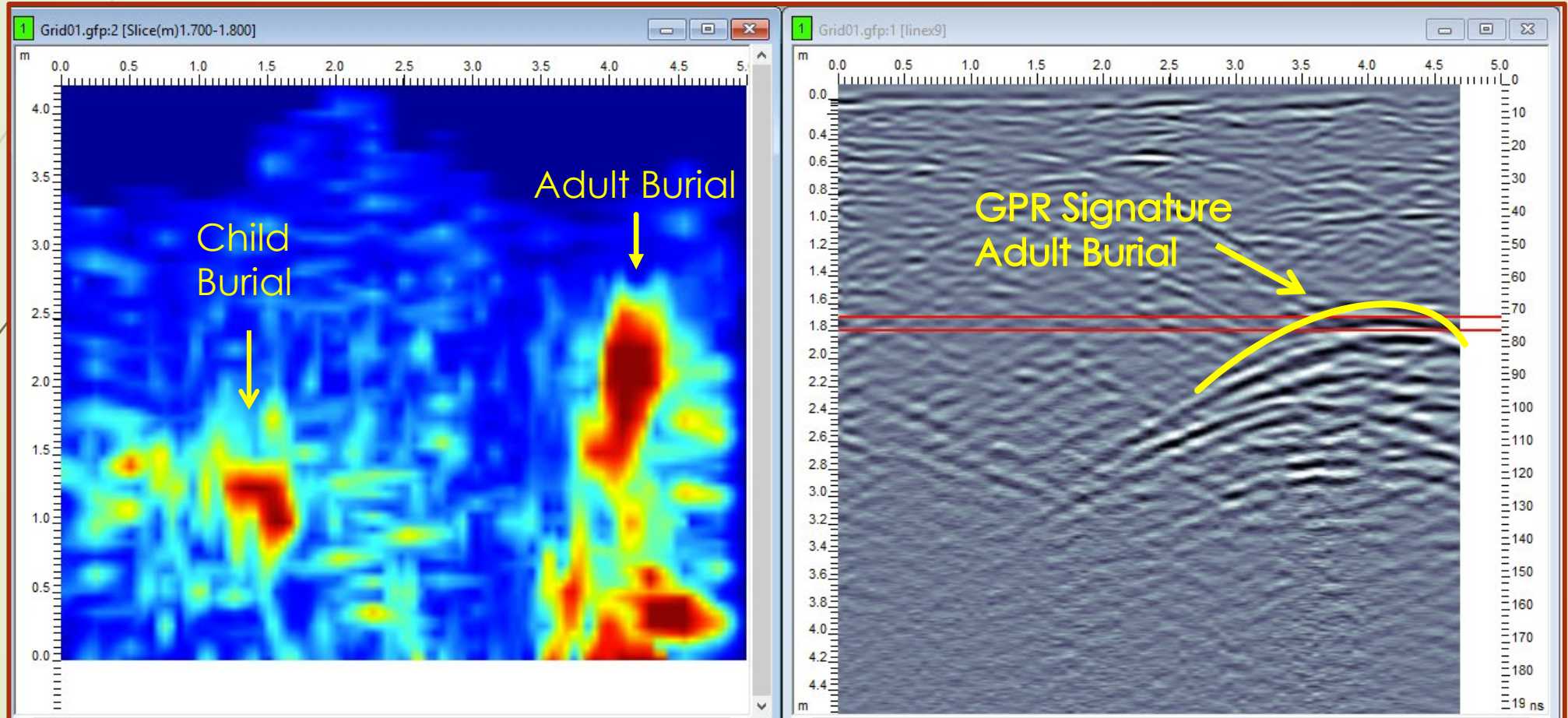


Common
features of a
formal burial
in a cemetery
include:

- ▶ A convex reflective pattern at the upper surface of a grave shaft;
- ▶ Vertical refractive patterns at the sides of the grave shaft;
- ▶ A horizontal reflective pattern at the base of a grave;
- ▶ A range of possible reflective patterns for the contents of graves.

GPR Data From a Typical Canadian Cemetery Context with Formal Burials

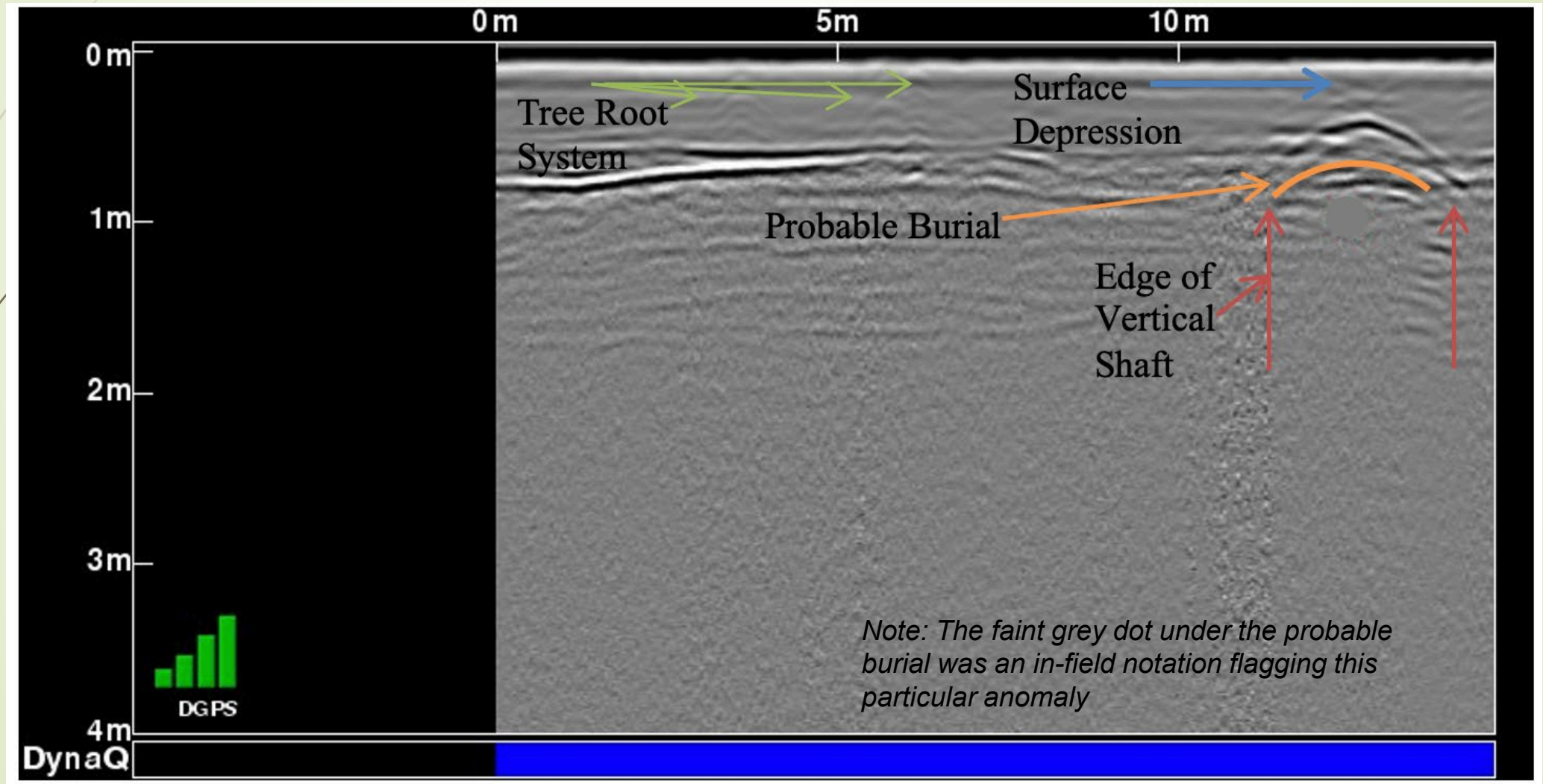
Note: the screenshots below are not from the Kamloops Indian Residential School Site



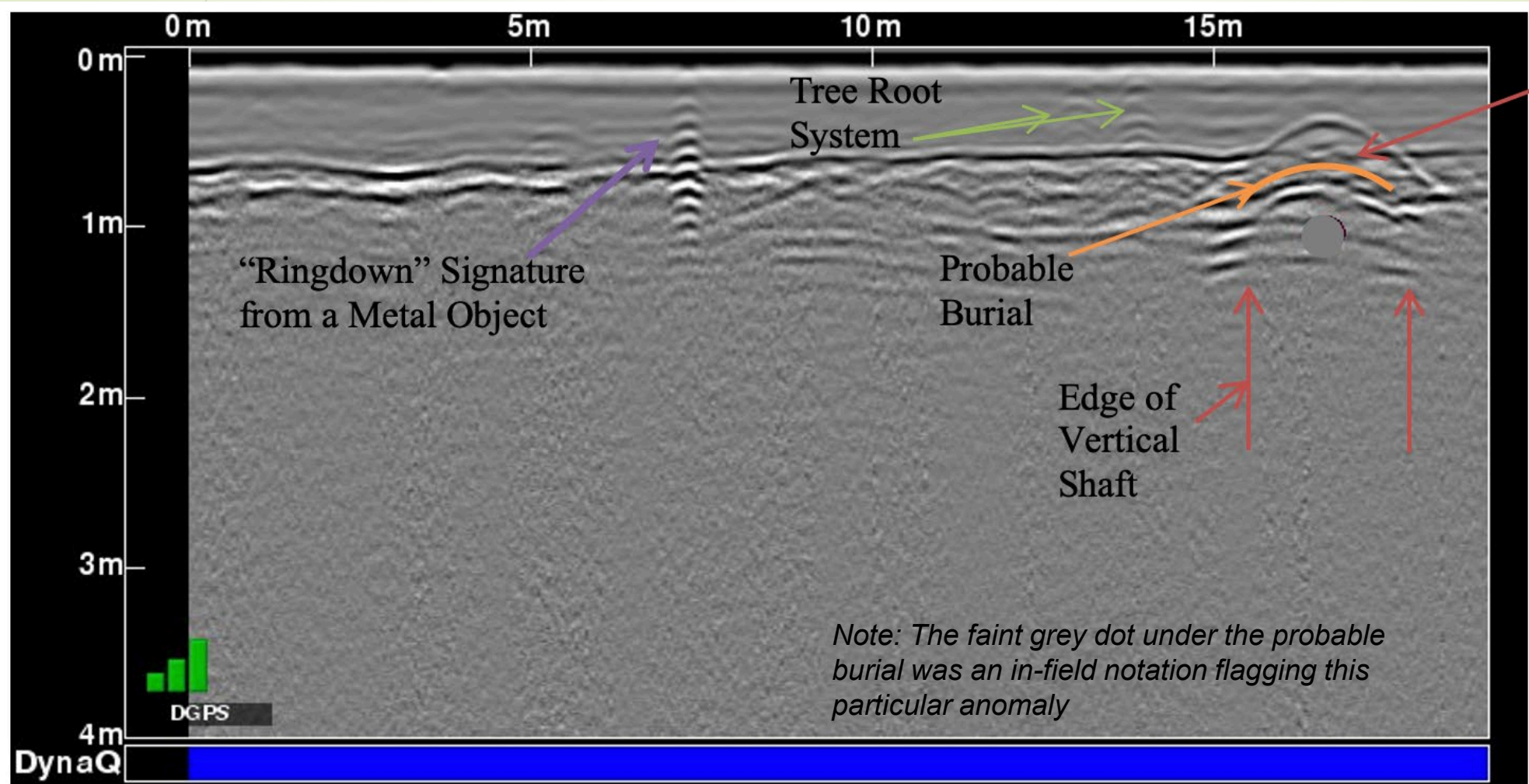
Blue box (left): GPR data in Sliceview

Grey box (right): GPR radargram data

Ground-Penetrating Radar Tk'emlúps te Secwépemc Preliminary Survey

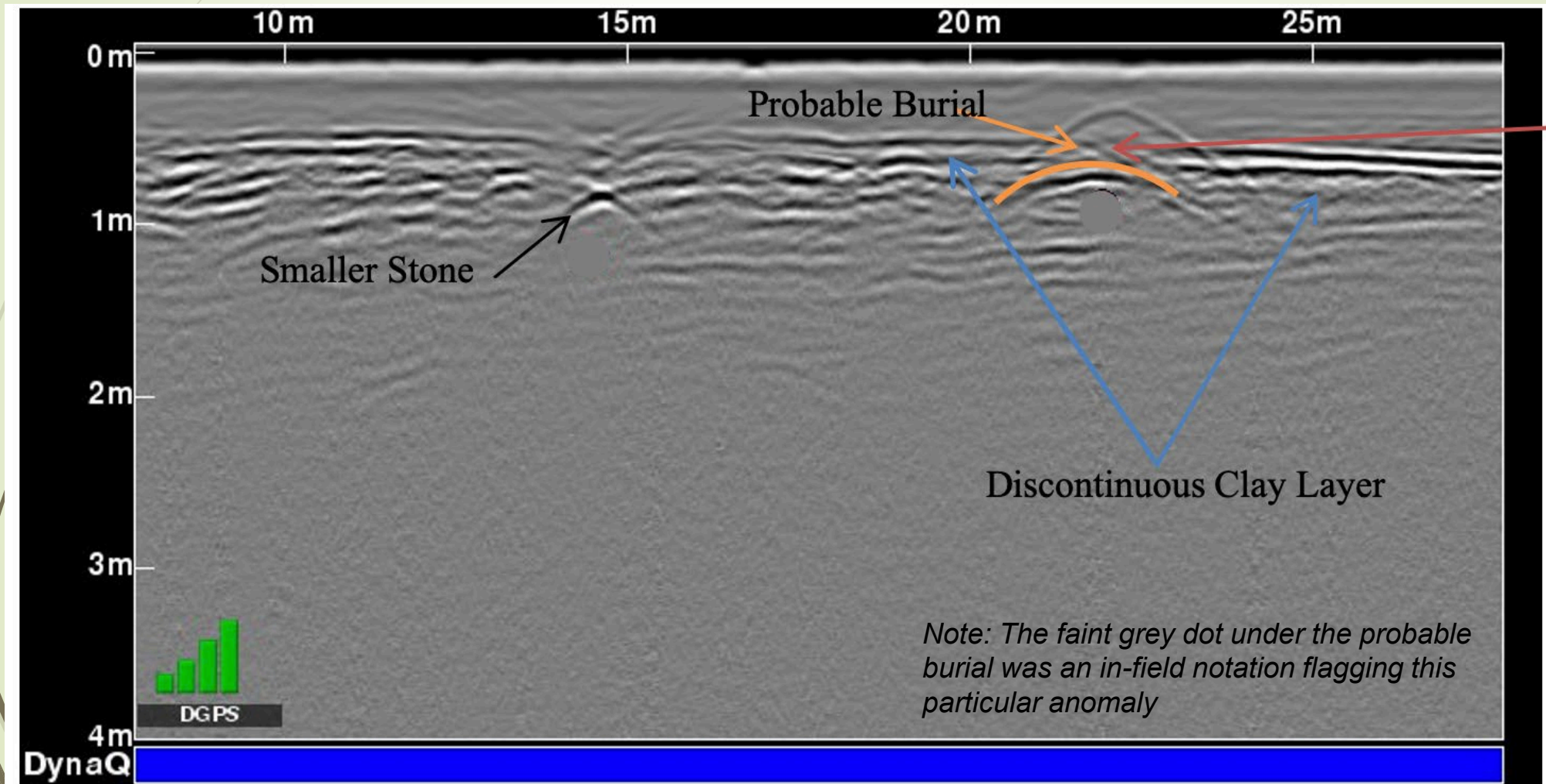


Ground-Penetrating Radar Tk'emlúps te Secwépemc Preliminary Survey



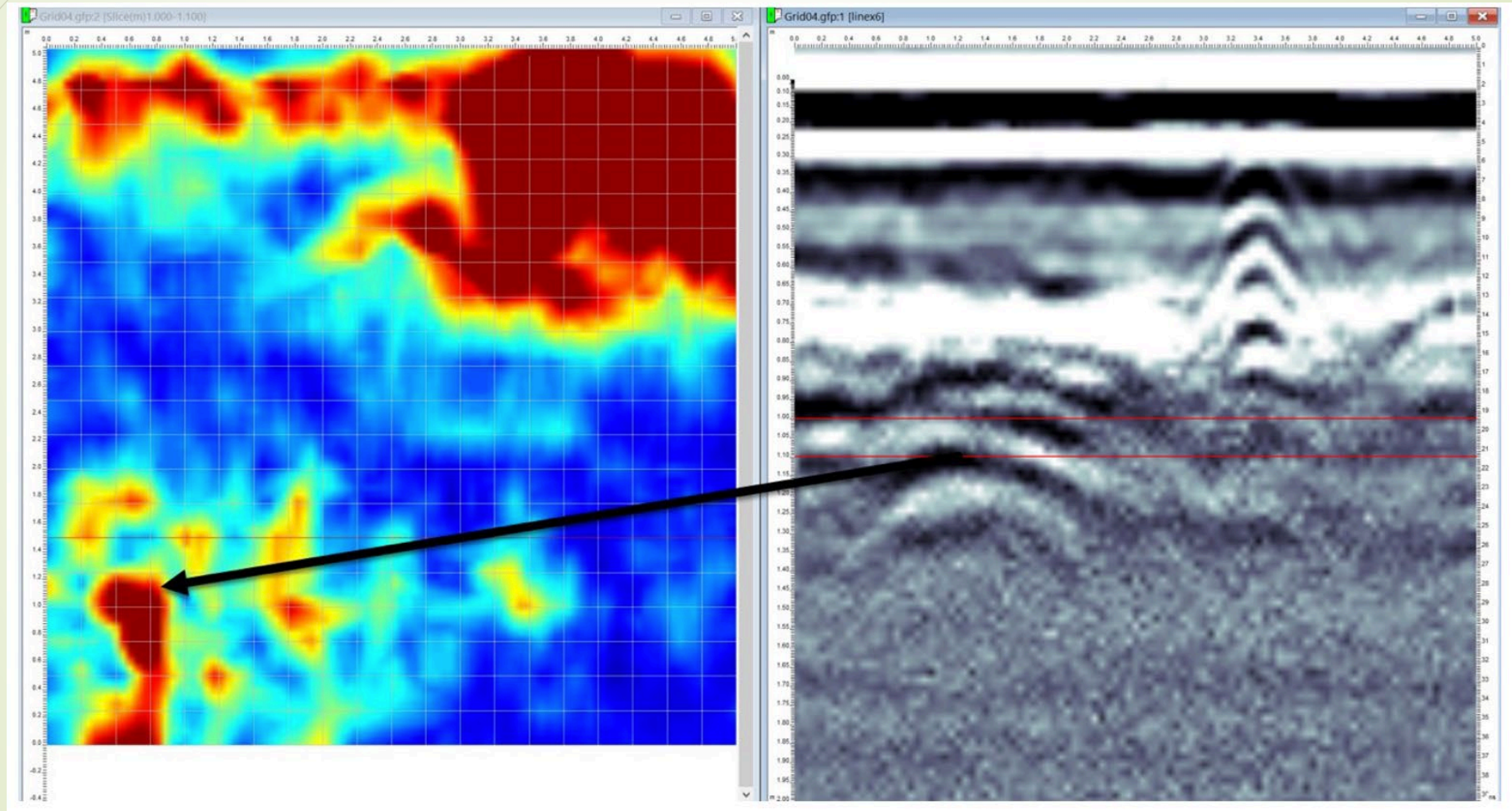
Possible
grave shaft
soil
disturbance

Ground-Penetrating Radar Tk'emlúps te Secwépemc Preliminary Survey



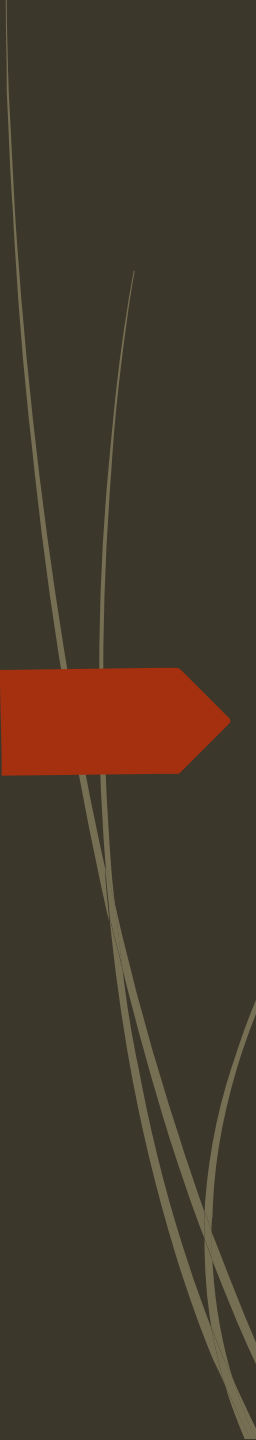
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Ground-Penetrating Radar Tk'emlúps te Secwépemc Preliminary Survey



Blue box: GPR data in Sliceview

Grey box: GPR radargram data



Cultural protocols, and oral tellings are as equally important as the science behind remote sensing

- ▶ This fact – the *knowing* – has been recognized by Indigenous communities for generations
- ▶ Given the nature and sensitivity of this work, one cannot and should not be done without the other