This document has been created to provide a broad overview of various Remote Sensing Techniques for communities searching for children who never came home from Indian Residential Schools. It is intended to help inform communities about the various kinds of technology, and provide alternatives for environments where one technique is not a good option. This is a living document and will be updated as new information becomes available.

Technology	Used For	Cons	Works Well For	Has Issues With	Potential Alternatives
Ground-based GPR	Identifying objects and changes in the subsurface that differ from normal 'ground' based on soil characteristics and other factors. Can be used to find grave shafts/pits.	Hard to cover large areas quickly. (Cover approx. 1,000 sq. metres per day) Difficult to maneuver in rough or treed terrain	Formal cemeteries or burials Areas cleared of brush Small areas Locating individual burials	Informal or clandestine burials (requires additional information) Clay-rich soils, or areas with a high water table Densely treed areas	Magnetometry Electrical Resistivity Conductivity
UAV/Drone GPR	The basic same technique as ground-based GPR, but mounted on a drone. Can be used to locate areas of interest that may contain unmarked graves.	Less accurate than ground-based methods, but can cover larger areas much more quickly. Weather-dependent	Initial surveying to identify areas of interest Large or densely treed areas May be able to identify some burials	Locating individual grave shafts Soils with a lot of clay Areas with a high water table	UAV/Drone LiDAR UAV/Drone Photogrammetry or Multi-spectral Imagery

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UAV/Drone LiDAR	Used to quickly record surface variation and topographic relief of areas. Can be used to locate surface expressions of unmarked graves (mounds/depressions) May be used to reconstruct the ground's surface in heavily treed areas.	Weather-dependent Only shows ground surface, and graves may not be visible from the surface.	Open Areas Can sometimes penetrate heavily treed areas (Boreal Forest) Initial survey to identify areas of interest	Seeing below the surface of the ground. Areas with high levels of ground disturbance.	Drone GPR
UAV/Drone Photogrammetry or Multi-spectral Imagery	Draws upon visible light, as well as other energy in the electromagnetic spectrum to record aerial images of the ground surface. Can be used to locate any areas of interest for unmarked graves based on vegetation cover and ground surface.	Weather-dependent Only shows ground surface, and graves may not be visible from the surface.	Clear areas or with low-lying brush (Prairies) Initial survey to identify areas of interest	Heavily treed areas (Boreal Forest) Surveys in Autumn (as plants are at the end of their growth cycle and the ground can be obscured).	Drone GPR
Electric Resistivity	Identifies changes in subsurface deposits based on how they respond to electrical currents. Can identify voids (air pockets) and changes in soil compaction and moisture retention	Invasive - you must stick metal electrodes in the ground. Very slow (compared to other techniques).	Soils with high clay or moisture content (where GPR is challenging),	Dry environments Large areas	Ground-based GPR Magnetometery Conductivity

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Conductivity / Electromagnetic Induction	Can locate subsurface buildings and identify disturbed soils. Identifying areas of interest in a large landscape	Regions with little or no difference in the soil column are less likely to provide successful results. Negatively impacted by the presence of metal waste materials	Faster than Ground-based GPR (3-6,000 sq. metres per day) Can work in waterlogged soils Supplementing other geophysical work	Identifying specific graves or other small features Urban environments, or soils with lots of metal inclusions	Ground-based GPR Magnetometry Electric Resistivity
Magnetometry	Locating objects and/or changes in the subsurface that have different magnetic properties than the surrounding soil. Can be used to find graves (perhaps the disturbed soil fill) and grave features (metal hardware from coffins, nails).	Does not record the shape/depth of the feature, which must be estimated using mathematical equations.	Relocating destroyed buildings Identifying graves that have coffins or pieces of iron in them Can be used in areas where GPR cannot Can cover large areas quickly	Soils with a high iron content (igneous geologies) Highly disturbed areas, especially containing lots of surface metal (e.g., dumps) Urban environments	Ground-based GPR Electric Resistivity Conductivity