During the week of 23 September, the Soil Research and Laboratory Staff assisted soil scientists in Maine complete ground-penetrating radar (GPR) investigations at several sites in Aroostook and Penobscot counties, most of which involved verifying the depth to rock. In Aroostook County, potato farmers are using supplemental irrigation to increase yields and improve the quality of their crops. Maine NRCS provides technical and financial assistance for the installation of high-efficiency center pivot irrigation sprinklers to replace older, less efficient, traveling gun irrigation systems. This assistance requires a sufficient water supply so that the withdrawal of irrigation water does not impact water flow and levels in streams and lakes. In order to protect natural aquatic life, the State of Maine has laws that regulate the withdrawal of water and establish minimum stream flows and lake water levels. Maine NRCS provides assistance to farmers for the development of an alternative water source: a surface-water irrigation reservoir. Depth to rock is a major factor in excavation costs, available volume, and potential drainage and integrity of a surface-water irrigation reservoir. Soil scientists used GPR to map and verify the depth to rock and assess the suitability of two EQIP irrigation storage reservoirs sites: one, the expansion of a preexisting reservoir; and the other, a new reservoir.

Ground-penetrating radar was used to assess the depth to rock at two EQUIP surface-water irrigation reservoirs in Aroostook County, Maine.

In Penobscot County, GPR was used to verify the depth to rock at three modal soil pedons (Kenduskeag, Adams, and Ragmuff) and across their associated delineations. At each of these locations, the soil pit was restricted by rock. MLRA soil scientists wanted to verify that these excavations were restricted by parent rock and not a larger “floater” rock. Multiple GPR transects were also carried-out to document the composition (by soil depth criteria) of the enclosing soil map units.