Section 106 information request

1. Exact coordinates of ground disturbance (excel, KMZ or shapefile all work)
   * See attached for planned transect locations.
2. General footprint at each site, including access (e.g. helicopter, vehicle etc.), the area you plan to walk around at the site, and the footprint of the actual coring.
   * Access is via helicopter. There are many constraints to where the helicopter can land; many of these are unknown until we attempt to land.
   * We will walk from the helicopter landing to the GPS location.
   * At each site, we will lay out a 30 m linear transect at each site. We will travel out and back along the transect approximately three person times. We will set our packs and gear near the 0 m end of the transect. Each of the following steps will be carried out by one person:T
     + Take GPS measurement at 0 m, roll out tape to 30 m along compass bearing, take GPS measurement at 20 m. Return along transect inventorying trees and shrubs along transect in 30 x 2 m belt.
     + Start at 0 m end of transect and measure soil organic layer depth and permafrost thaw depth at 3 m intervals for a total of 10 measurements per metric. Take 3 soil cores at 6, 15, and 24 m marks as described below. Return away from transect.
     + Start at 0 end of transect and estimate plant % cover at 3 m intervals. Return to 0 m away from transect.
3. How many people will be participating in the fieldwork?
   * 3 people maximum, as constrained by the helicopter. Sometimes the piolet has gotten out of the helicopter and helped us measure thaw depth, but this seems less common with the current helicopter contractors.
4. Description of ground disturbance to take place:
   * We will measure residual organic soil depth and permafrost thaw depth at 3 m intervals along the transect for a total of 10 residual soil and thaw depth measurements per transect. Residual soil depth measurements consist of slicing a small (5 cm long) slash into the organic soil layer and probing, by hand, for the organic-mineral soil interface, which is determined by texture, and measuring the distance from the surface to the interface. Permafrost thaw depth measurements consist of sliding a long, 2 cm dia metal probe into the ground until it hits the ice surface, removing the probe, and measuring the distance from the surface of the moss to the surface of the ice.
   * At three randomly chosen locations along the transect (i.e., a subset of the soil profiles examined above), we will destructively harvest soil by inserting a 6.8 cm diameter soil corer with serrated cutting blade into the organic soil layer until it reaches the organic-mineral interface, removing the corer, extruding the organic soil, and then reinserting the corer into the same hole and coring to 10 cm deep in the mineral soil (or to the permafrost surface, if less than 10 cm) as measured by the depth from the organic-mineral interface into the mineral soil. The mineral soil core will be removed and extruded. Both cores will be placed on ice and returned to the laboratory.
   * Number of cores:
     + Three per transect, which is equivalent to site in our statistical design.
     + All coring in year 1 of transect sampling (so 3 cores per site for the entire project)
     + Corer is 6.8 cm diameter
     + Depth is to 10 cm in the mineral soil layer
     + Tools being used for coring: 30 or 50 cm long hand-made “twist core” with serrated blade on the coring end.
     + Pictures or diagrams of the sampling techniques
   * Any other ground disturbance including installation of monitoring systems etc.
     + We will permanently mark transects for future non-destructive resurveys. We have many options on what to use for permanent transect markers (wood stakes, benchmarks, pin flags with anchors). What works best for your permitting process?
5. List any Tribes/Villages/Municipalities/Corporations that you’ve coordinated with about this fieldwork.
6. How and where you plan to access the field sites?
   * By helicopter
7. Is the area already disturbed in any way? For example, note any sites where research is already taking place, and your coring will be within the already established footprint
   * All sites will be disturbed by wildfire (within past three years of sampling)
8. Landownership and any permits that you have already gotten or expect to need ie. what other agencies have you worked with
   * BLM, State of Alaska, USFWS