



Guidance on Permanent Waivers for FMA Participants

When a sample plot is being located, there may be circumstances under which it becomes dangerous to complete navigation to the plot centre point. In some cases, the plot location will be able to be reached by another route, but occasionally no other route may exist. Alternatively, once at the sample plot centre point, circumstances may such that it is dangerous or impractical to establish the plot and/or complete the collection of FMA information.

In circumstances such as those above, FMA participants may apply for a permanent waiver from the requirement to establish the sample plot at the specified location, and/or to submit FMA information for that plot. If at all possible, an estimate must still be made of the FMA information that would otherwise have been collected at the sample plot for which a permanent waiver is requested.

Estimates may be based on measurements made at an alternative sample plot that is considered equivalent in terms of forest characteristics. If the alternative plot is not exactly equivalent, measurements may be able to be made that when adjusted provide a suitable estimate (for example, by taking account of differences in stocking between the original plot location and the new equivalent plot location).

An FMA participant is free to choose their own estimation method, though they will need to briefly justify why it is appropriate as part of their application for a permanent waiver. Alternatively, participants may wish to follow one of the suggested approaches to estimation given below, which are suitable for a range of commonly encountered circumstances.

When the sample plot is known to be located on land with a slope of more than 45°

- (i) If it is dangerous or impractical to establish the plot and/or complete measurements on steep land (e.g., due to the presence of recent slash, slippery surfaces, or even steeper land immediately down-slope), an alternative equivalent plot may be used.
- (ii) To avoid bias, the following procedure should be used to locate the centre point of the equivalent plot:
 - Return to the position previously navigated to, which is at a distance of not less than 30 m from the plot location and at which averaged GPS coordinates were recorded when determining the distance and bearing to the originally-specified plot location.
 - If that position is also on a slope of 45° or more, choose a new position on less steep land from which to determine the distance and bearing to the specified sample plot centre point – in accordance with the procedure given in the *Guide to the Field Measurement Approach* (Step 3-B, p. 27), or in the *Field Measurement Approach Standard* [Part 3, clause (2)].
 - Proceed along the compass bearing to the sample plot location determined at the position, until the slope of the land first approaches but does not exceed 45°. The equivalent sample plot is to be established at this location.
 - Establish the equivalent sample plot with a centre point on the line of the compass bearing that was being used to navigate to the originally-specified plot location, and complete all other plot layout and FMA information collection requirements as usual.

When it is too dangerous to navigate to the specified sample plot location to determine the forest conditions at the location, and an alternative access route does not exist

- (i) If it is not possible to observe from a distance the trees at the approximate position of the specified plot location:
- This should be a relatively rare occurrence.
 - Evidence of the reason that it is too dangerous to navigate to the specified plot location must be provided (preferably supported by photographs).
 - A permanent waiver which does not require an estimate of the FMA information that would have otherwise have been collected may be granted in this case, provided there is actually forest at the location for which FMA information is required to be collected.
 - The participant may also recommend (or MPI may require) an alternative sample plot be established, based on analysis of aerial/satellite imagery and other geospatial information.
- (ii) If the trees at the approximate position of the specified plot location can be observed from a distance:
- Evidence of the reason that it is too dangerous to navigate to the specified plot location must be provided (preferably supported by photographs).
 - A permanent waiver which requires an estimate of the FMA information that would have otherwise have been collected may be granted in this case.
 - The approximate diameter, height, stocking of trees, and the estimated slope, in the original plot vicinity should be assessed and recorded. If an alternative equivalent sample plot cannot be established (next step below), this estimated information will be used to determine carbon stocks for the sample plot.
 - An alternative equivalent sample plot should however be established if at all possible, and FMA information collected, in the nearest accessible part of the same stand, on as similar a slope as possible – if other parts of the stand exist with trees of similar stocking, diameter and height. If the slope at the original plot location is more than 45°, establishing the alternative plot on a lesser slope is acceptable.
 - When applying for a permanent waiver, information on the average diameter and height of trees, and on the stocking and slope, for the original plot location and that of any alternative equivalent plot, should be included. If the average diameter and height, and stocking or slope, are very different for the original and equivalent plot locations, an adjustment factor will be applied to make the FMA information that is collected at the alternative plot similar to that expected for the original plot.
 - If the alternative sample plot is accepted as a condition of the waiver, it is used for collection of all future FMA information.

When it is possible to navigate to the specified sample plot location, but impractical or dangerous to either establish the plot or collect FMA information at that location

- (i) If it is impractical or dangerous to complete measurements for a sample of trees within the expected plot boundary:
 - Evidence of the reason that it is too dangerous to establish the plot, or complete collection of FMA information, must be provided (preferably supported by photographs).
 - Otherwise, this case is the same as that for the last case above.
- (ii) If it is possible, without actually establishing the plot, to complete measurements for a sample of trees within the expected plot boundary:
 - Evidence of the reason that it is too dangerous to establish the plot, or complete collection of FMA information, must be provided (preferably supported by photographs).
 - A permanent waiver which requires an estimate of the FMA information that would have otherwise have been collected may be granted in this case.
 - The average diameter and height of the trees, an estimate of the stocking, and the estimated slope, for the original plot location should be recorded. If an alternative equivalent sample plot cannot be established (next step below), this estimated information will be used to determine carbon stocks for the sample plot.
 - An alternative equivalent sample plot should however be established if at all possible, and FMA information collected, in the nearest accessible part of the same stand, on as similar a slope as possible– if other parts of the stand exist with trees of similar stocking, diameter and height. If the slope at the original plot location is more than 45°, establishing the alternative plot on a lesser slope is acceptable.
 - When applying for a permanent waiver, information on the average diameter and height of trees, and on the stocking and slope, for the original plot location and that of any alternative equivalent plot, should be included. If the average diameter, height, stocking or slope are very different for the original and equivalent plot locations, an adjustment factor will be applied to make the FMA information that is collected at the alternative plot more equivalent to that expected for the original plot.
 - If the alternative sample plot is accepted as a condition of the waiver, it is used for collection of all future FMA information as if it was the originally-allocated plot.