

GLORIA re-survey layout process

Overview

The basic re-survey plan is centered on the high point of the summit (HSP), oriented to the cardinal directions (N,E,S,W), and spans two zones: from the HSP down in elevation 5 meters, and down 5 more meters (for a total of 10 meters below the HSP).

This lay-out process allows botany teams to go to work on defined plots in minimal time.

Usually, some team can get to work on a plot-type (3x3, 10x10, or SAS) well before the whole system could be deployed.

How quickly the botanists begin to survey the plots depends on how much time they require to get familiar with the plants, and on how many folks we have.

The plots are laid out in the order that best accommodates the botany-survey teams, though they begin with the primary survey points as described herein.

Jim Bishop, Revised July, 2017

Basic plot types

1. Summit Area Sections (SAS) occupy each aspect (N,E,S,W), one set above the 5-meter perimeter and one set between the 5m and 10m perimeters. The SAS lie between the intercardinal directions (NE, SE, SW, NW).
2. 3mX3m plots are located on each cardinal direction at the 5m perimeter (p5m). A 1m quadrat is located in each outer corner.
3. 10mX10m plots, centered on the same p5m reference point as above, diagonally along cardinal directions, of 10 1m-strips & 400 sample points. See last two pages for information on the 10mX10m plots.

Order of development

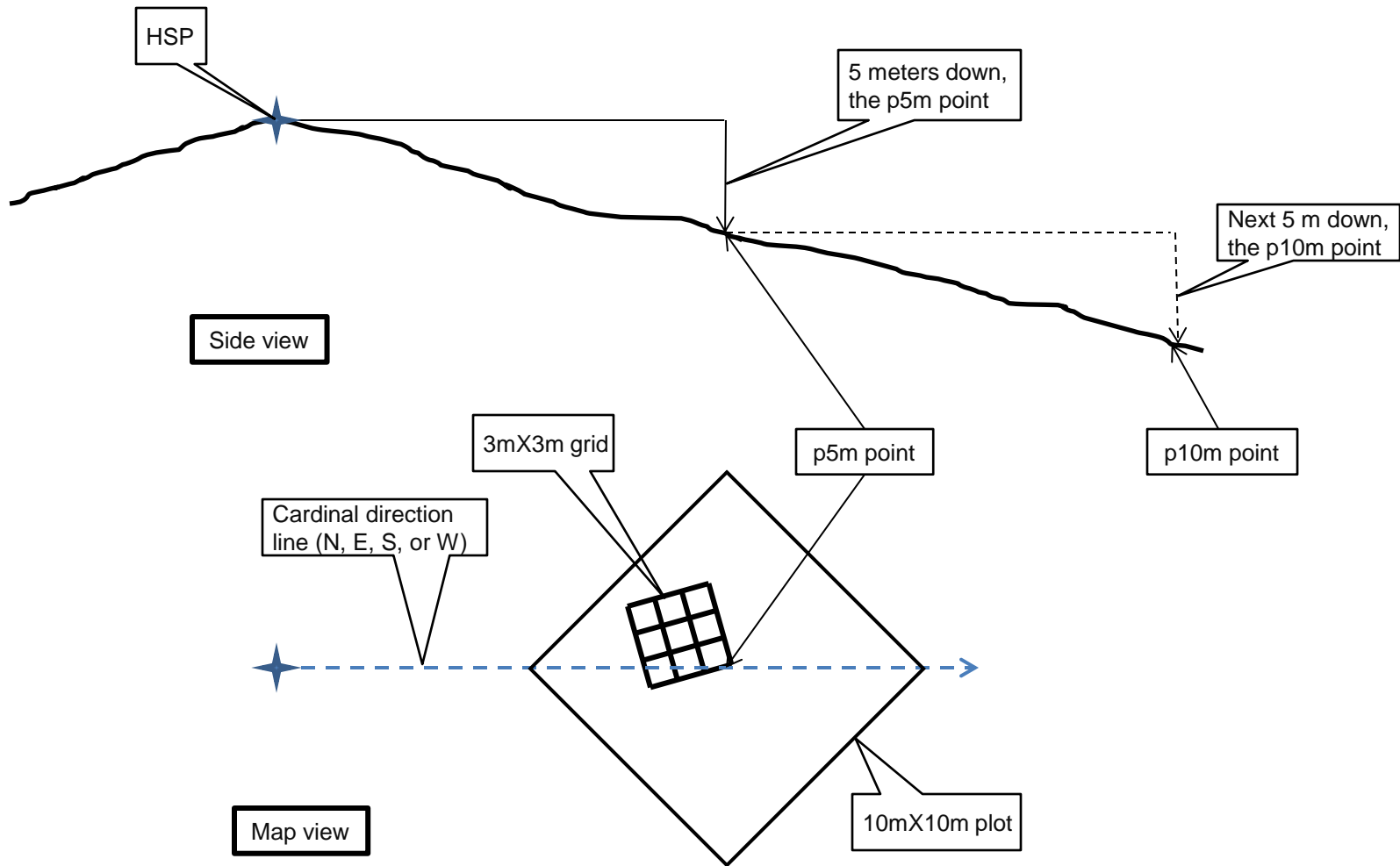
1. The first reference points, p5m, that must be established are on each cardinal direction, 5 meters in elevation below the HSP.
2. Those points allow the 3mX3m plots, & the 10mX10m plots, to be placed at once.
3. When all 4 of the p5m points are in place, the upper SAS can be defined.
4. The 10m perimeter elevation points, p10m, are placed on the cardinal directions, & the lower SAS can be defined...last of the survey plot types.

Some essential practices

1. Always place the bag or holder for equipment in the right place, so it can be found later, with a rock on it. Looking for misplaced items wastes a lot of time.
 - 3mX3m-grid bag at the grid-origin point (p5m)
 - 10mX10m strings &/or bag at the top of the 10mX10m diamond
 - String winders at the end of the string when it is laid out
2. Always return data binders and other items to the designated “gear cache”, usually near the HSP.

Some helpful hints

1. A flag placed on a cardinal or an intercardinal direction can be lined up by sight with a marker on the HSP, or with another flag along the same line (such as N, or SW, etc.), to allow placement of other marks on that same line
2. As soon as the p5m points are identified and marked, and the upper and lower 10mX10m plot points marked, all plots except the lower SAS can be laid out.
3. In weighting a string, try to place a rock on the string with minimal turns around the rock, so it is easier to pick up later.
4. Laying out the perimeter lines (which lie in a vertical plane intersecting the hill, not along the contour) is easier if someone stands between the reference points to help guide the placement of the string. The original mark of the intercardinal & perimeter intersection will help.



1. Walk out along a cardinal direction guided by a compass bearing (backsight or foresight) to find the p5m marks.
2. Measure 7.07m up and 7.07m down from p5m and mark the upper and lower points of the 10mX10m plot.
3. You can place a 3mX3m grid, corner on the p5m point, with lower line parallel to the elevation contour.
4. You can lay out 10mX10m plot, centered on the p5m point, with a diagonal of 14.14 m length along the cardinal direction.
5. If you do not deploy the plots, leave the 3mX3m grid and the 10mX10m strings at the proper locations.
6. Move to next cardinal direction. You can come later and extend the line along the cardinal direction to the p10m point.

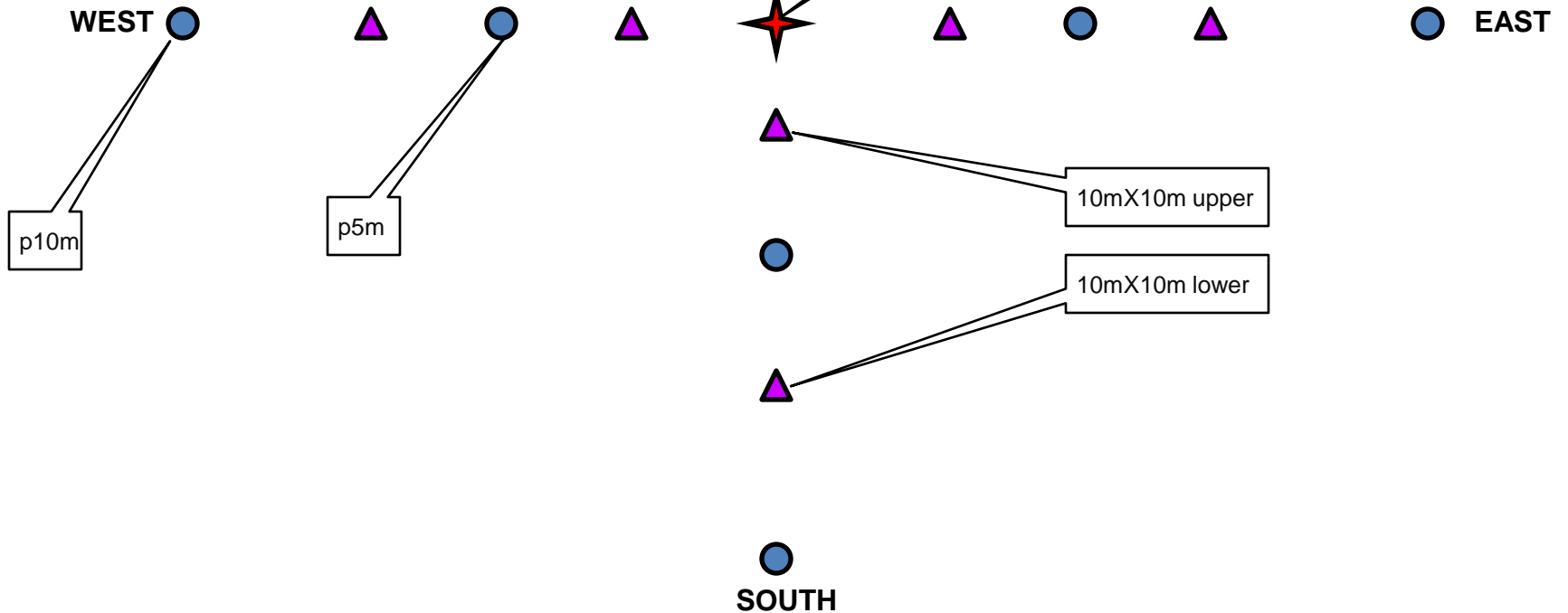
This diagram shows just the primary reference points, looking down on the HSP.

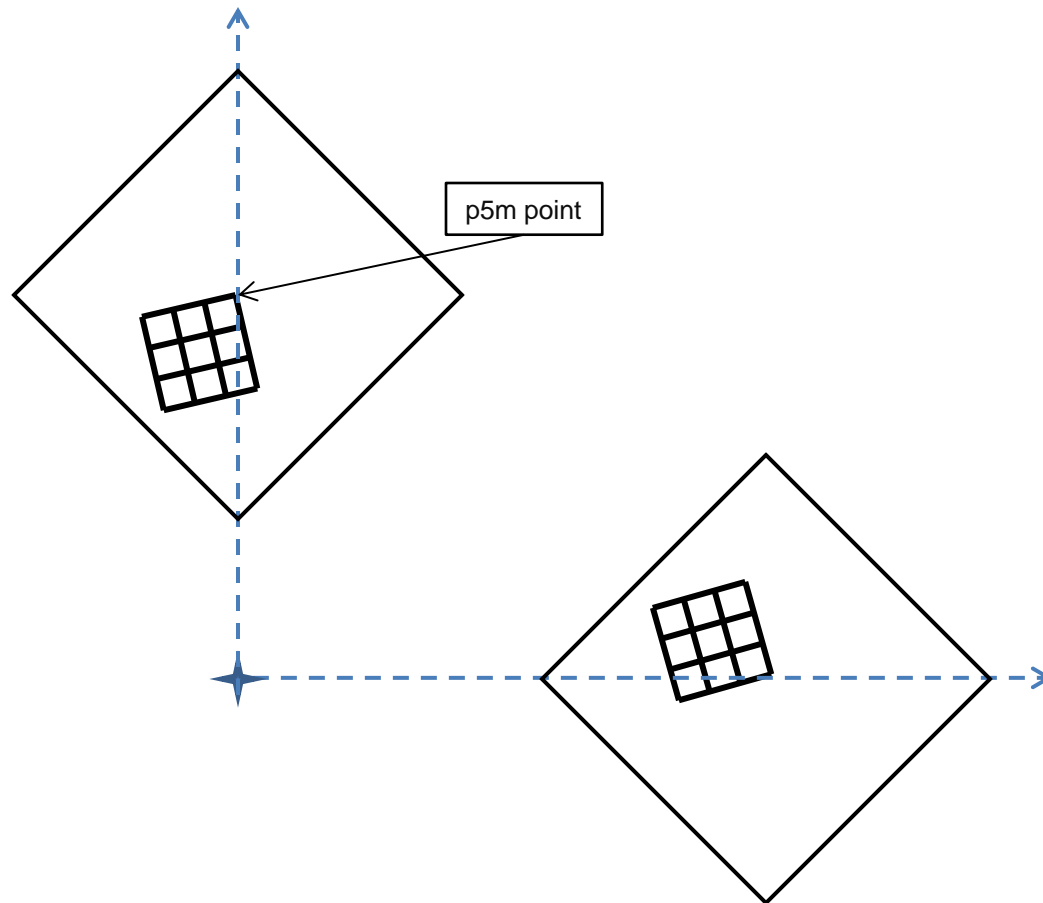
All of the other survey plot lines extend from these points.

The layout teams should establish these points as soon as possible, though the p10m points should be done after the entire set of plots above them are set up.

Mark them with flags, with p5m and p10m points distinct from the 10mX10m plot upper and lower points.

You can establish the 3mX3m and 10mX10m plots as you go along, as shown in the other illustrations, or leave the grid/plot materials at the designated points.

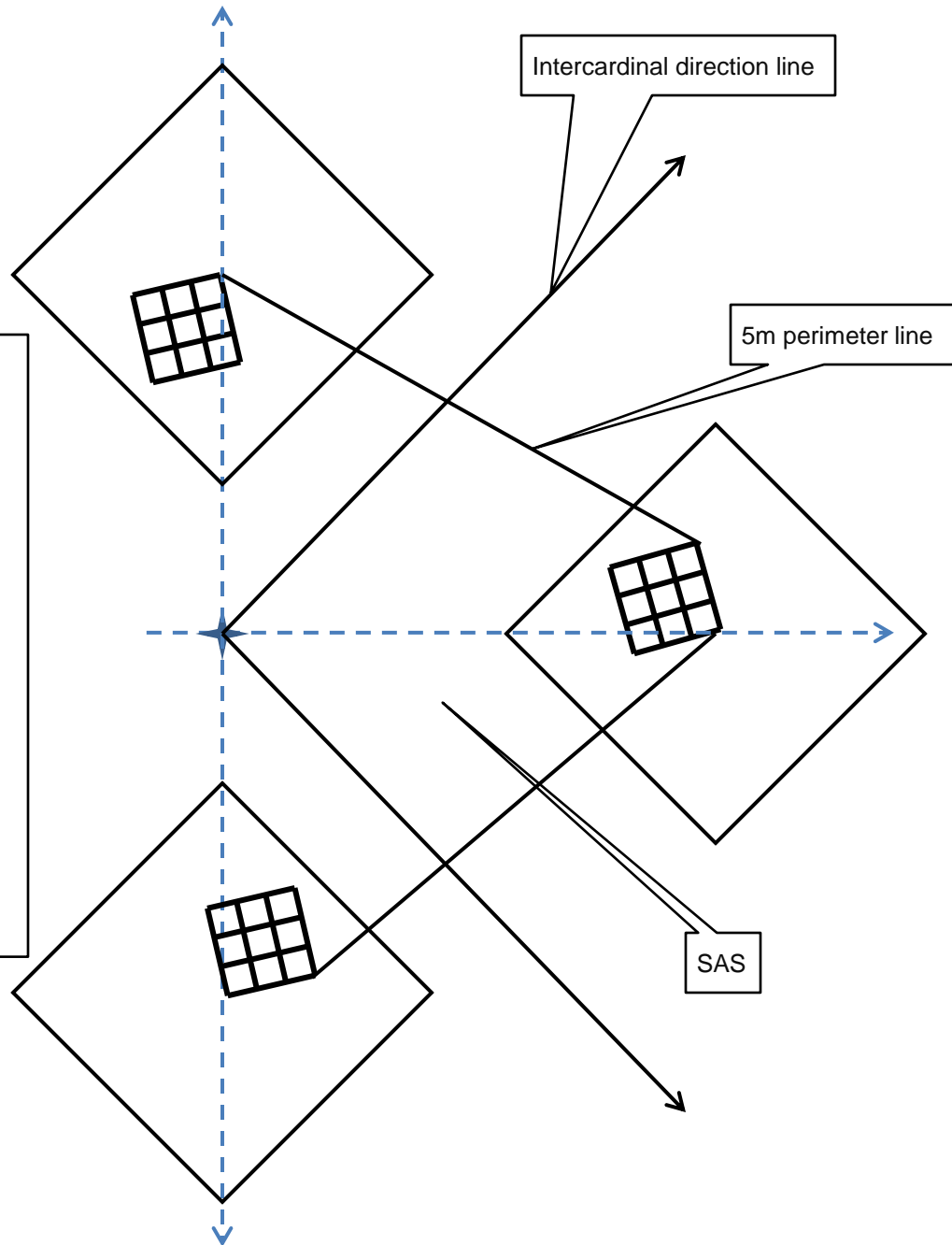




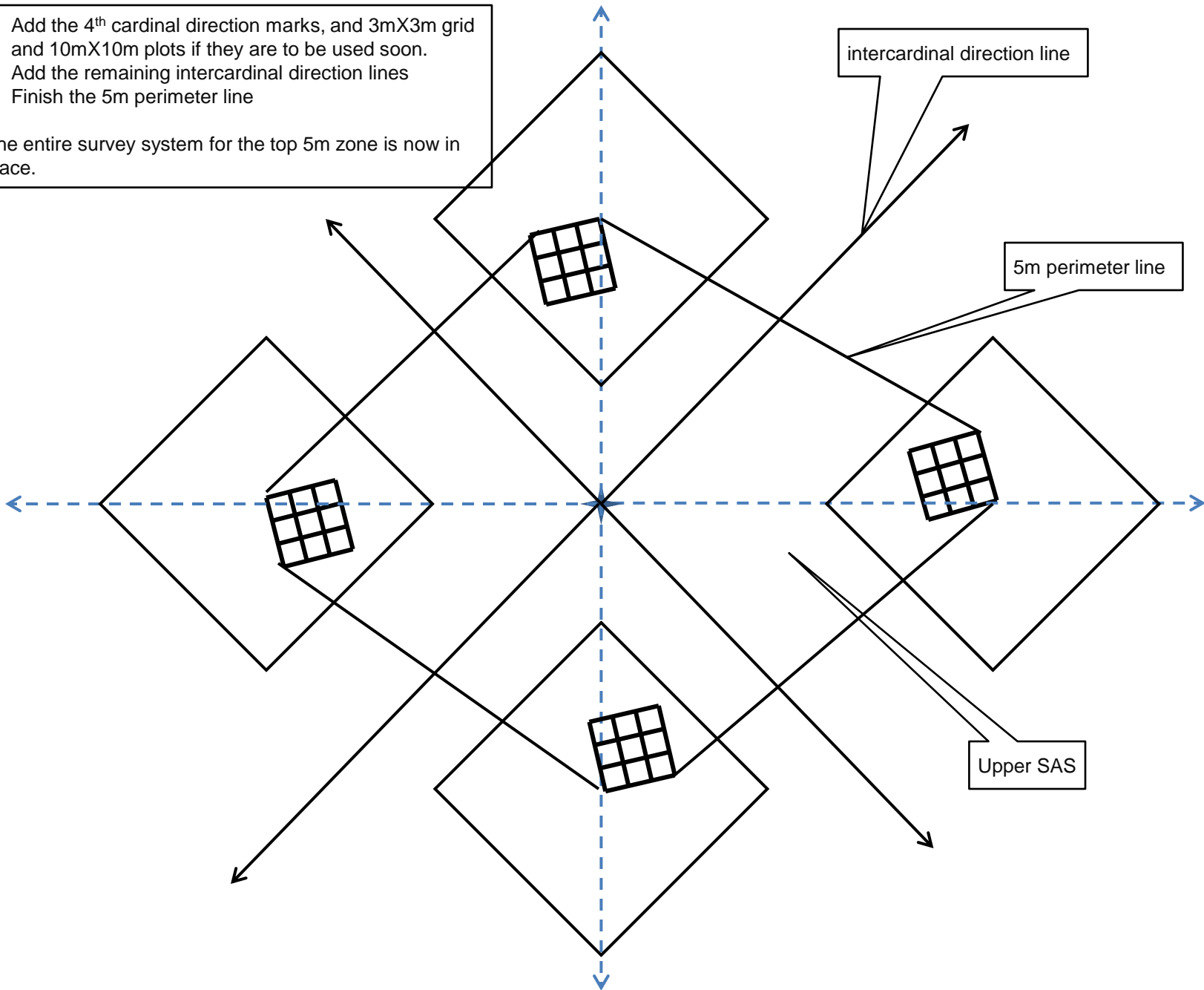
1. Repeat the placement of the marks and the p5m point on an adjacent cardinal direction.
2. You can place the 3mX3m grid and the 10mX10m plot (unless other teams will do that).

Note: If there is no botany team to utilize the 3mX3m plot, or the 10mX10m plot, for a while you can leave either or both for later. Put the grid/plot materials at the designated locations: the p5m point for the 3mX3m, or the upper 10mX10m point for that plot.

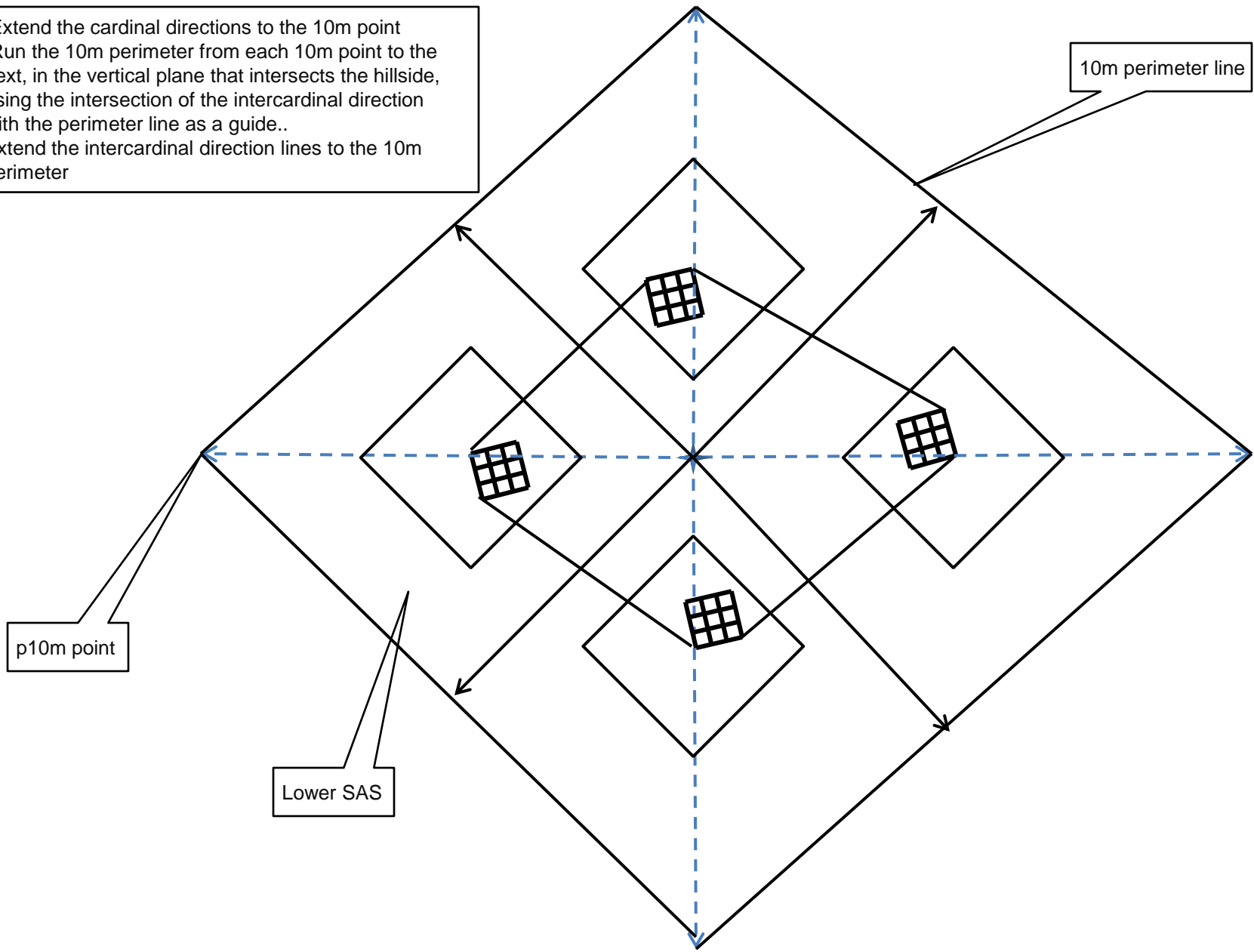
1. Repeat the placement of a cardinal line and the 5m perimeter point on an adjacent cardinal direction.
2. Place the 3mX3m grid and the 10mX10 m plot (if a team can utilize it soon).
3. Walk out along the intercardinal lines to locate the marks where they crossed the 5m perimeter lines and mark them with a flag.
4. Lay out the 5m perimeter line as shown, in the vertical plane that cuts the hillside and runs from corner to corner of the 3mX3m grids. Use the flag at the intersection with the intercardinal line to guide you.
5. Run the intercardinal lines (NW, NE, etc.) that define the Summit Area Section. You could do those lines when you placed the flags if you like. That SAS can now be surveyed.
6. The flag that marks the intersection of the 5m perimeter and the intercardinal direction line can be sighted toward the HSP to allow the intercardinal line to be extended to the 10m perimeter.



1. Add the 4th cardinal direction marks, and 3mX3m grid and 10mX10m plots if they are to be used soon.
 2. Add the remaining intercardinal direction lines
 3. Finish the 5m perimeter line
- The entire survey system for the top 5m zone is now in place.



1. Extend the cardinal directions to the 10m point
2. Run the 10m perimeter from each 10m point to the next, in the vertical plane that intersects the hillside, using the intersection of the intercardinal direction with the perimeter line as a guide..
3. Extend the intercardinal direction lines to the 10m perimeter



GLORIA 10mX10m plot survey

The 10mX10m plots are centered on the p5m points (5 meters in elevation below the High Summit Point, HSP), on each cardinal direction (N,E,S,W) on a GLORIA summit, with the diagonal of the plot lying along the cardinal compass direction.

They are divided into ten 1-meter-wide strips, side-by-side, to make up a 10mX10m square plot.

Each strip is surveyed separately, recording all of the species that occur in the 1-meter strip (or belt). Also, 40 sample points are distributed on a half-meter grid along the strip and sample the cover type. There are 400 sample points for the whole plot.

The following diagram illustrates the plot and its components.

10mX10m plot is surveyed as 10 separate "strips".

Each strip is 1 meter wide. All species in the strip are identified, and 40 sample points are placed on a 0.5m grid within the strip.

A guide string runs down the center of a strip, and is moved along, strip by strip, across the plot.

Place the ends of the guide string on the 1m marks along the edge of the plot, which begin 0.5m from the outer edge.

The observer walks one way along the strip and identifies each species that lie within 0.5m of the guide string. Then the observer walks back along the strip and places the dual-point pointer each 0.5m along the string, and identifies the type of cover under the pointer.

Lay out the perimeter strings as shown: first string top to bottom, second string bottom to top, so that the meter-marks are on facing sides.

Pick up perimeter strings in the reverse order they were out laid in, which leaves the strings ready for the next plot.

