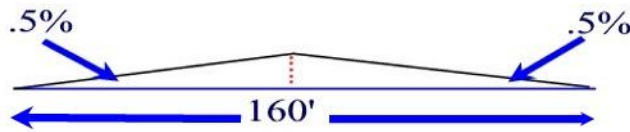


# RAKING IN a Slope (determining LINE for a Slope Laser)

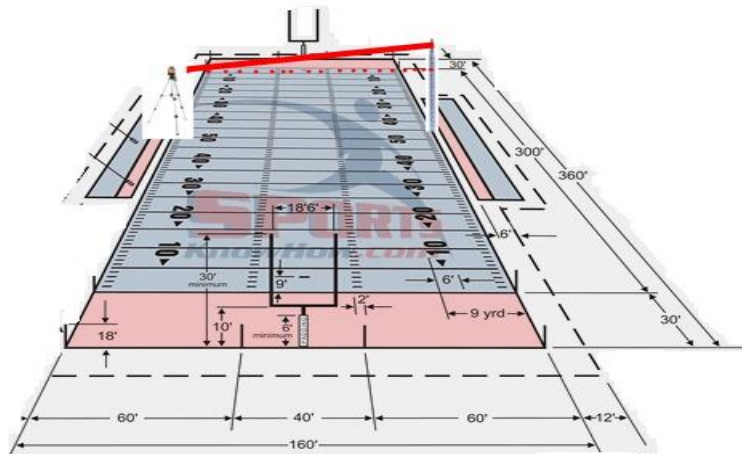
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Example Problem: Crowning a Football Field for drainage

Assume we have been given the project of putting a .5% grade from the center of a football field toward the out-of-bounds line.



Place the slope laser at the 50 yard line (although it could also be put along any of the yard lines including the goal line and would still cast the same grade plane over the entire football field). Have a helper with a rod and detector across the field where the 50 yd line intersects the out-of-bounds line.



Set the grade to zero on the Slope Laser so it can be used as an Electronic Level and have your helper make note the reading on the grade rod. Now we need to calculate what the reading should be when we set in a .5% grade on the Slope Laser. Knowing that .5% grade means a rise of .5 or ½ a foot (6 inches) in 100 feet, we need to figure out what the reading will be at 160' (the width of the field). A simple proportion can provide the answer as follows:

$$\frac{100}{160} = \frac{.5}{(?)}$$

$$100 \times (?) = 160 \times .5$$

$$100(?) = 80$$

$$\frac{100}{100} (?) = \frac{80}{100}$$

$$(?) = .8$$

Set the Slope Laser to a grade of .5% and aim at the rod across the field using the site on top of the laser head. Inform your helper to raise the detector .8 feet above the mark he noted when the Slope Laser was shooting a level plane. The detector should read “on grade” at the setting .8’ above the level mark but there is a good chance it doesn’t. So the Slope Laser will need to be turned slightly left or right until the helper indicates the detector is indicating an “on-grade” signal. The Slope Laser has now been “RAKED IN” and the job can be commenced.

Only half the field can be graded from the set-up described above. The Slope Laser will need to be moved to the original location of the rod and the same set process would be undertaken shooting back across the field in the opposite direction. Note: some Slope Lasers (AGL GradoPlane 25) can be set in the middle of the field with a -.5% set in so half the field can be graded...and then a Reverse Grade button can be toggled so the grade matches in the opposite direction.

**Reality Check:** Machine Control would probably be used on a project such as this. The Slope Laser would need to be put on a tall tripod so the laser beam can strike the machine control detector above the cab of the machine. Therefore, both the laser operator and the helper would need to do the above operation on a step ladder.