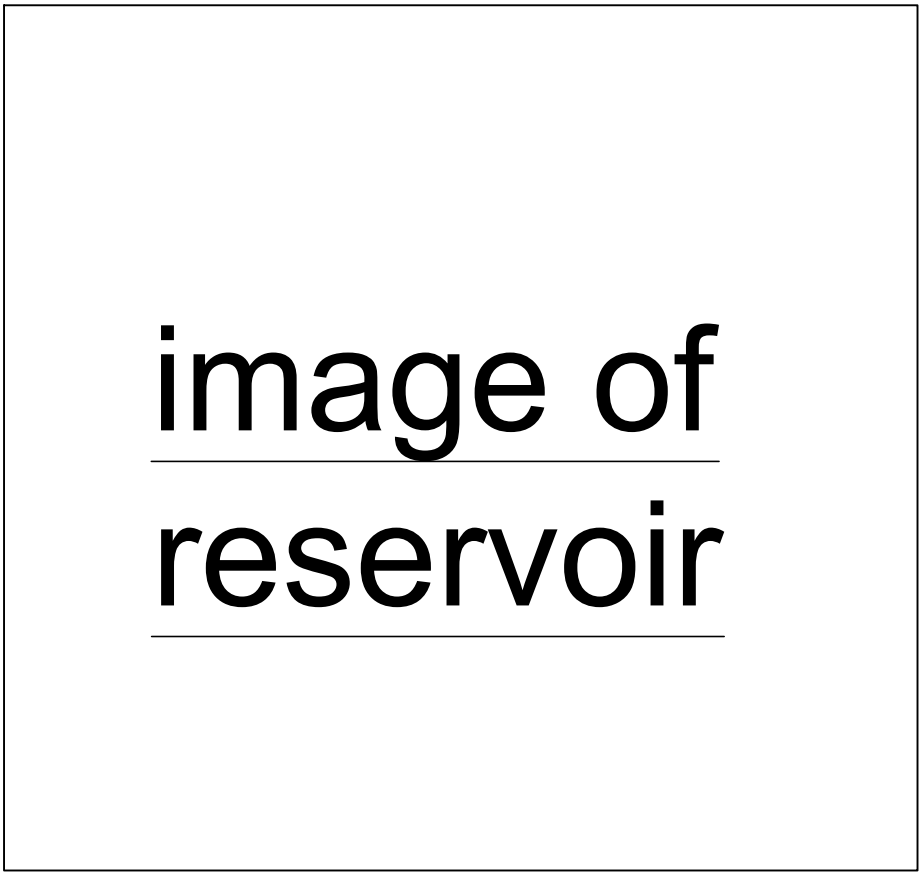
reservoir instructor

image of reservoir



selection place in the site:

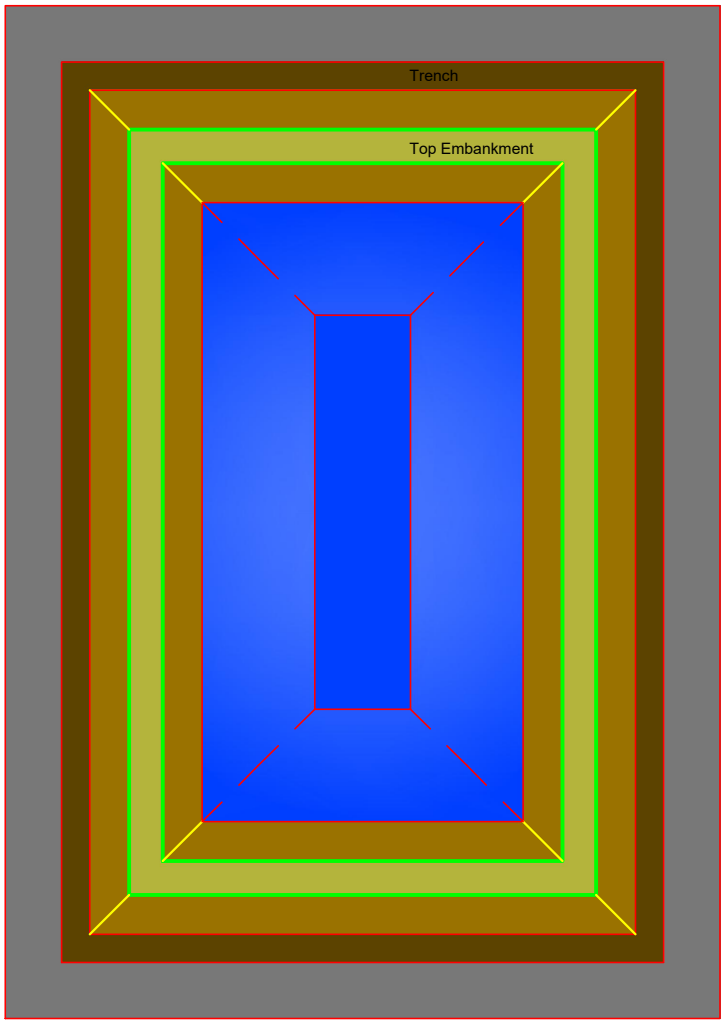
The first task is to find a proper location for the reservoir.
For this purpose, a flat area of 15X10 meters is required.
If possible, choose a slightly larger area so it will be convenience to walk around.
Tips:
- Choose a place where it easy to dig.
- Avoid digging where groundwater is shallow.
- Avoid digging next to a river bank/flooding zone.
- The reservoir should be constructed as close as possible to the irrigated area and not more than
50 meters far from it (to avoid pressure loss)

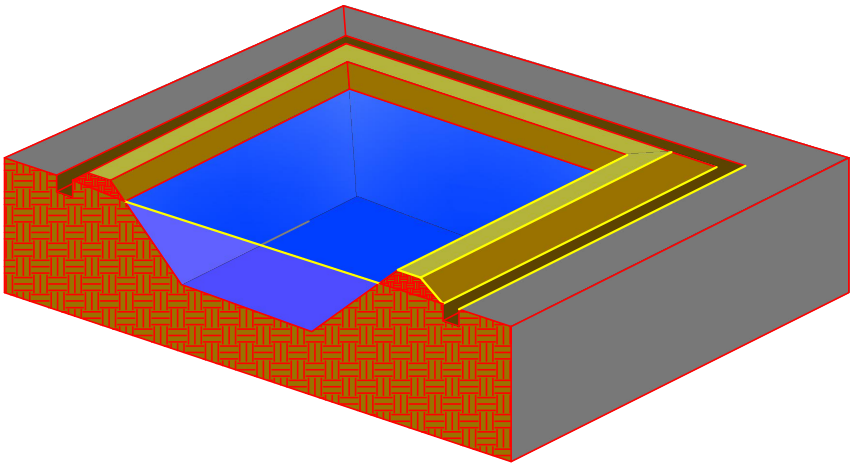
Key sing

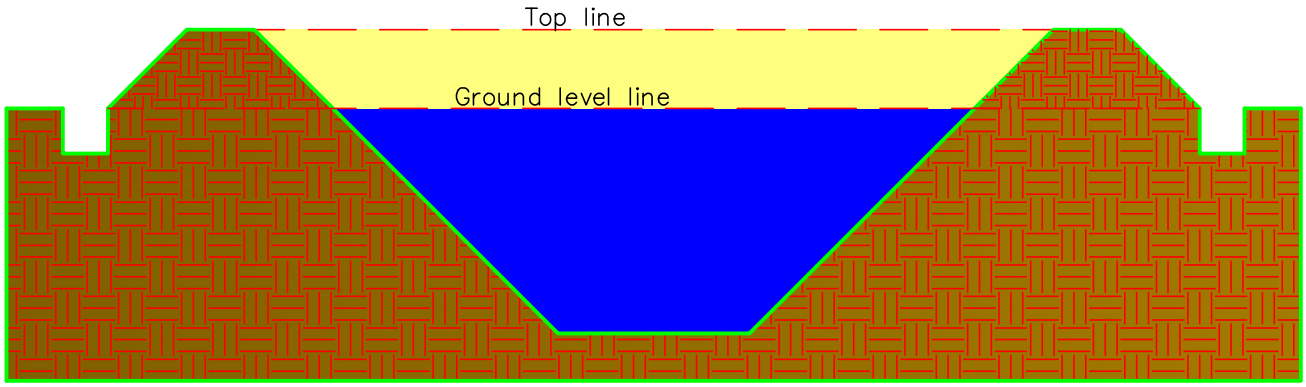
kind of line	color	singificance
dashed line	purple	measurement line
continuous line	green	step 1
continuous line	blue	step 2
continuous line	yellow	step 3
continuous line	red	step 5

Letter	color Kind of linear	Kind of reservoir
A	Length	Big reservoir
a	Length	small reservoir
B	Diagonal	Big reservoir
b	Diagonal	small reservoir

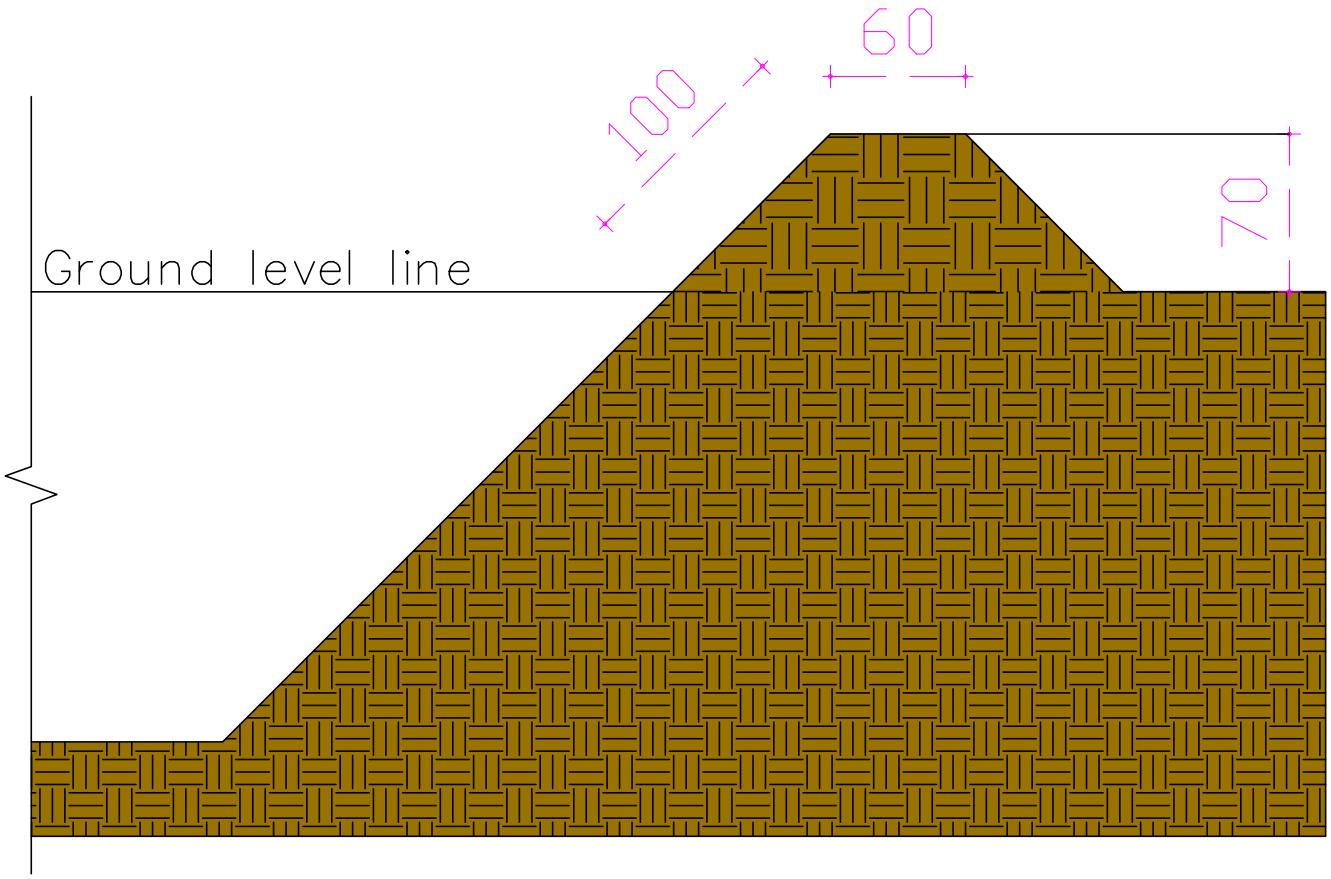
reservoir plan

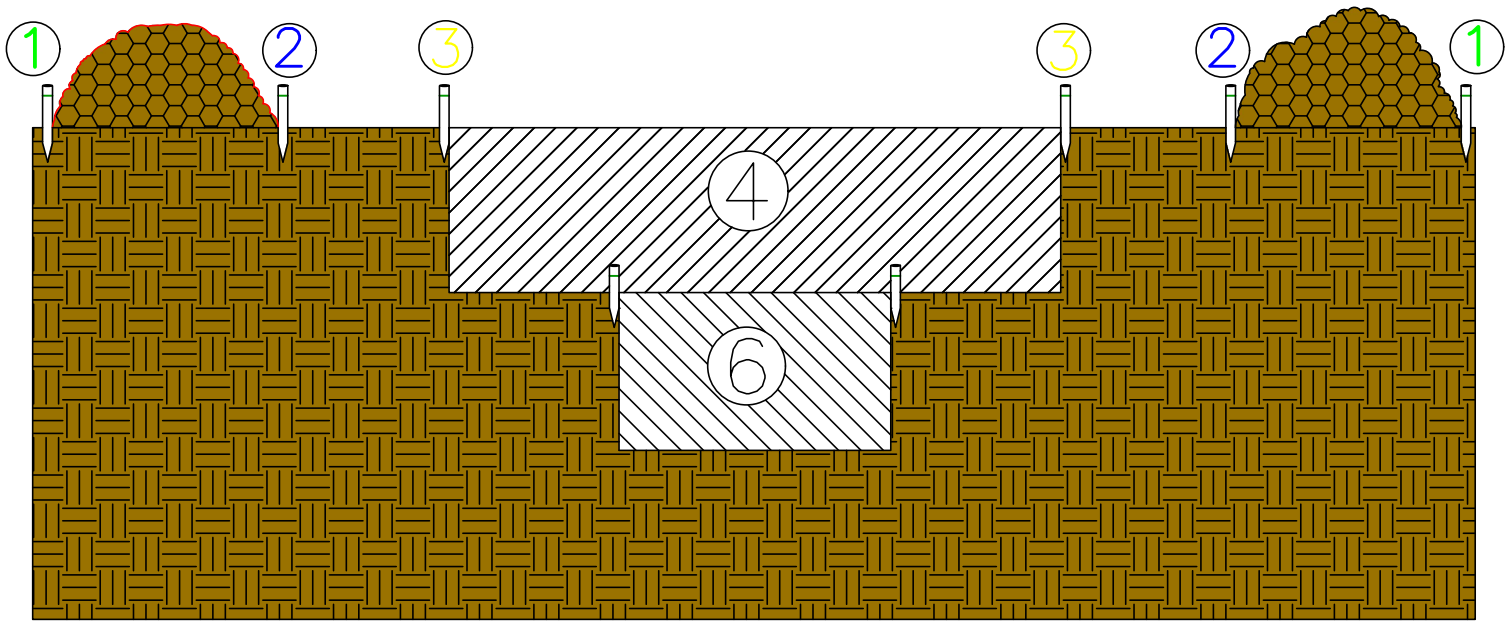






sections





Step 1

Measurement & Marking:

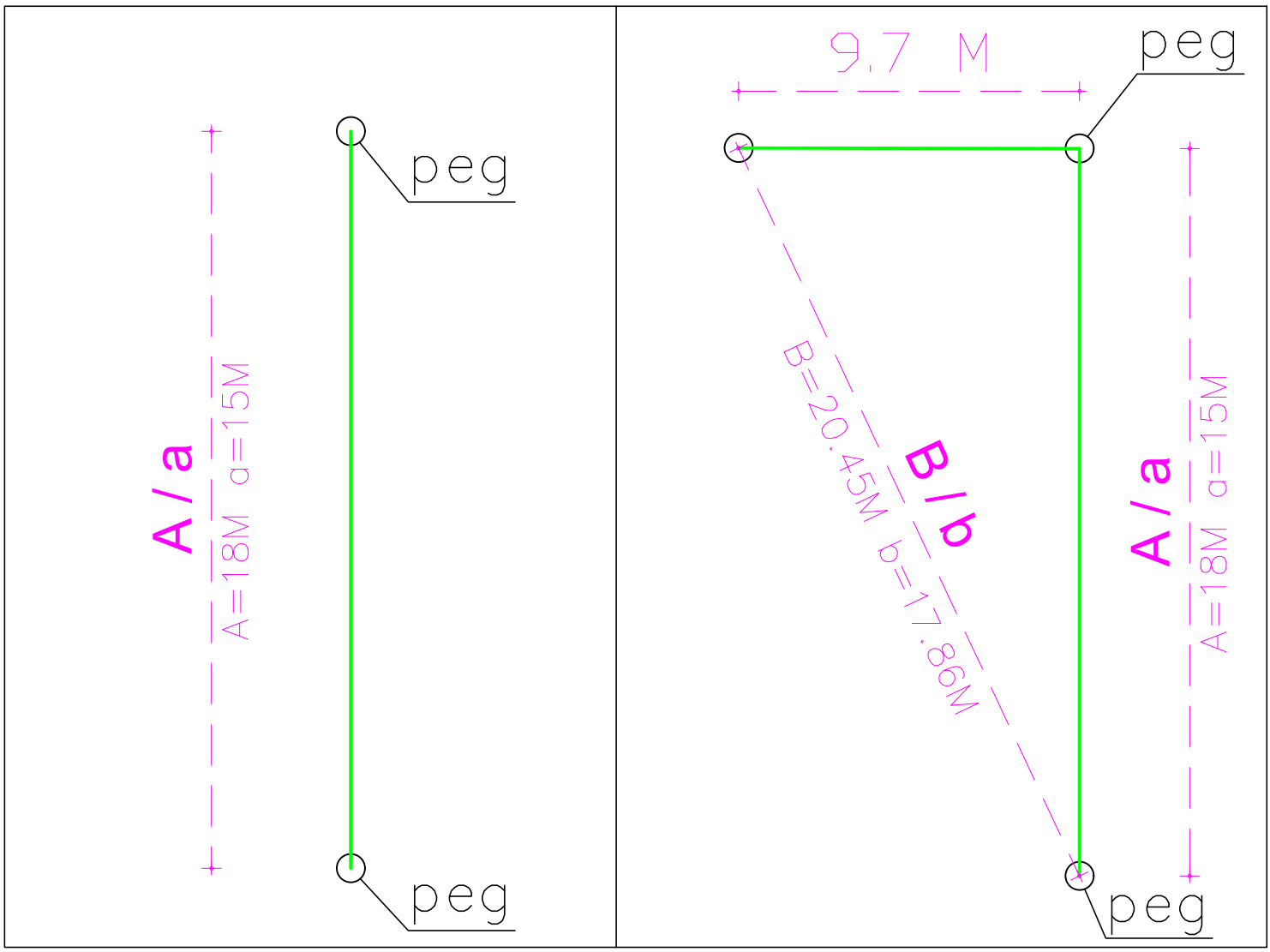
Clean the area from anything that can interfere with the measurements and marking work (e.g. old plants, rocks etc.)

Step one is to mark the first corner using a wooden peg.

– Step two is to mark the opposite corner and the rest of the corners using the diagonal method according to the dimensions listed in the drawing.

– After placing the corners, tie a rope around the four corners.

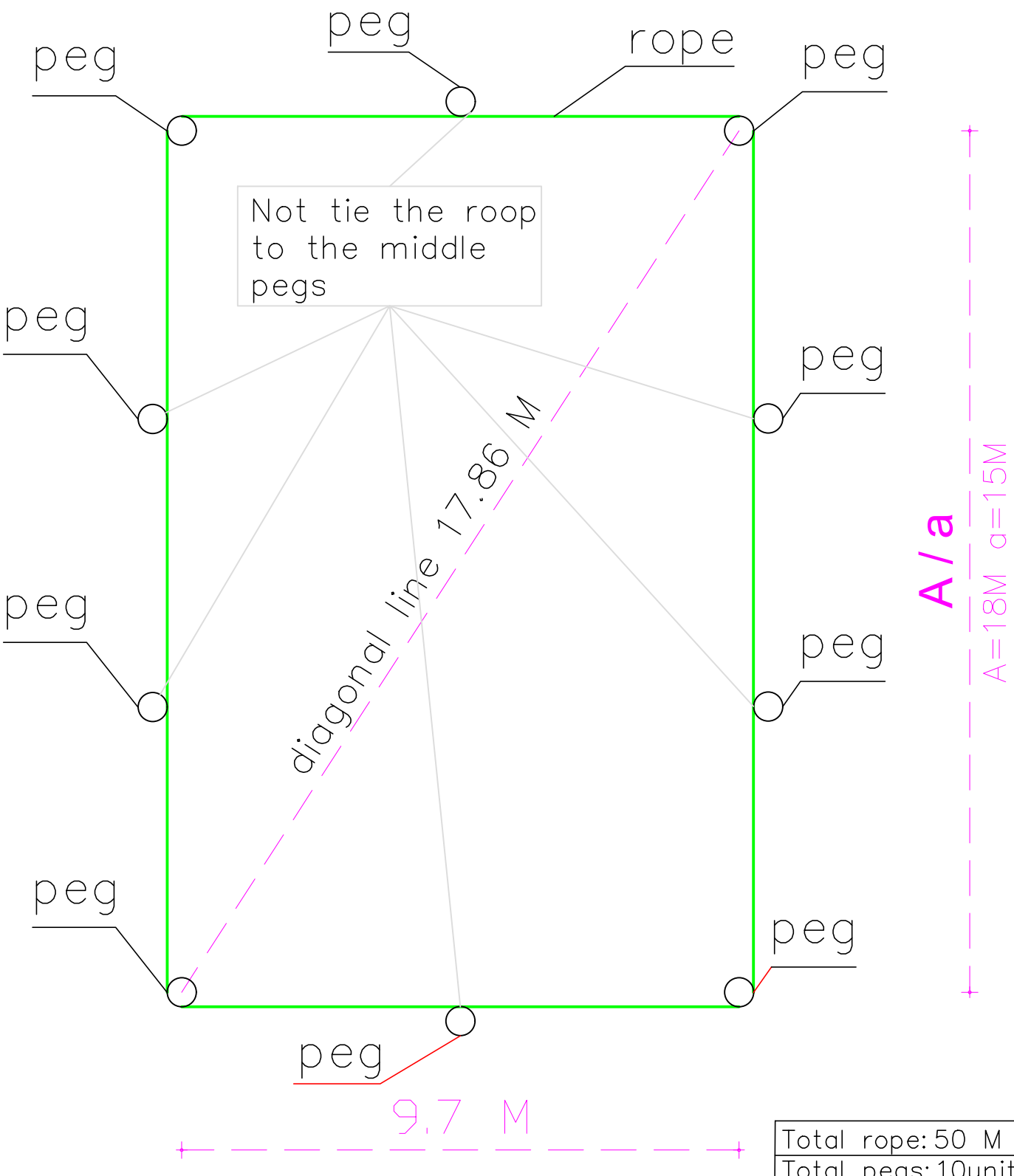
– Make sure it is a perfect square (90°) by measuring the diagonals once again ensuring the length of the sides are according to the diagram.



Step 1

Follow the placement of all four corners and tying a rope connecting all four corners, add middle pegs in between as shown in the diagram.

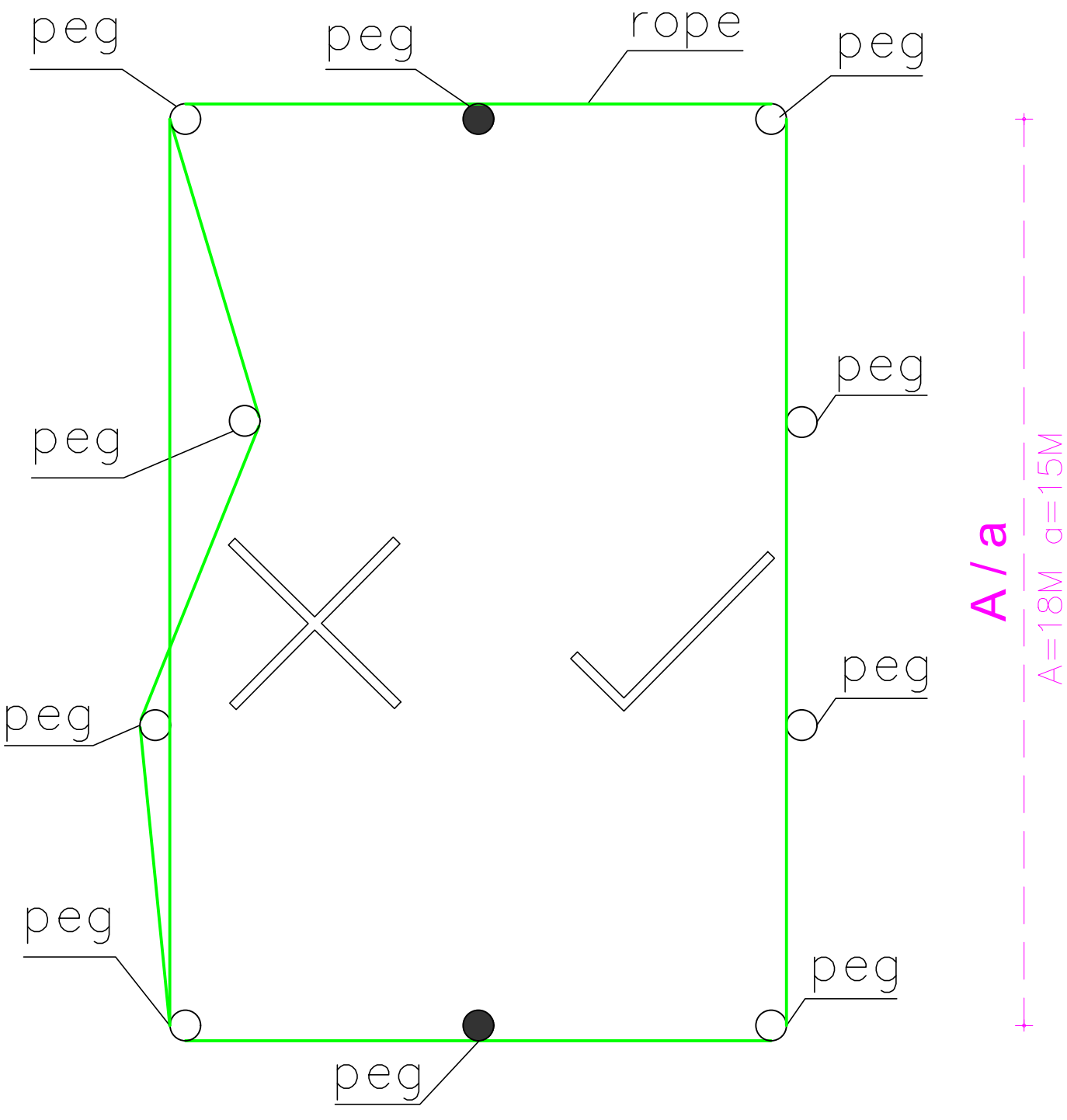
– The rope should not be tied to the additional pegs, just the 4 corners.



Total rope: 50 M
Total pegs: 10units

Step 1

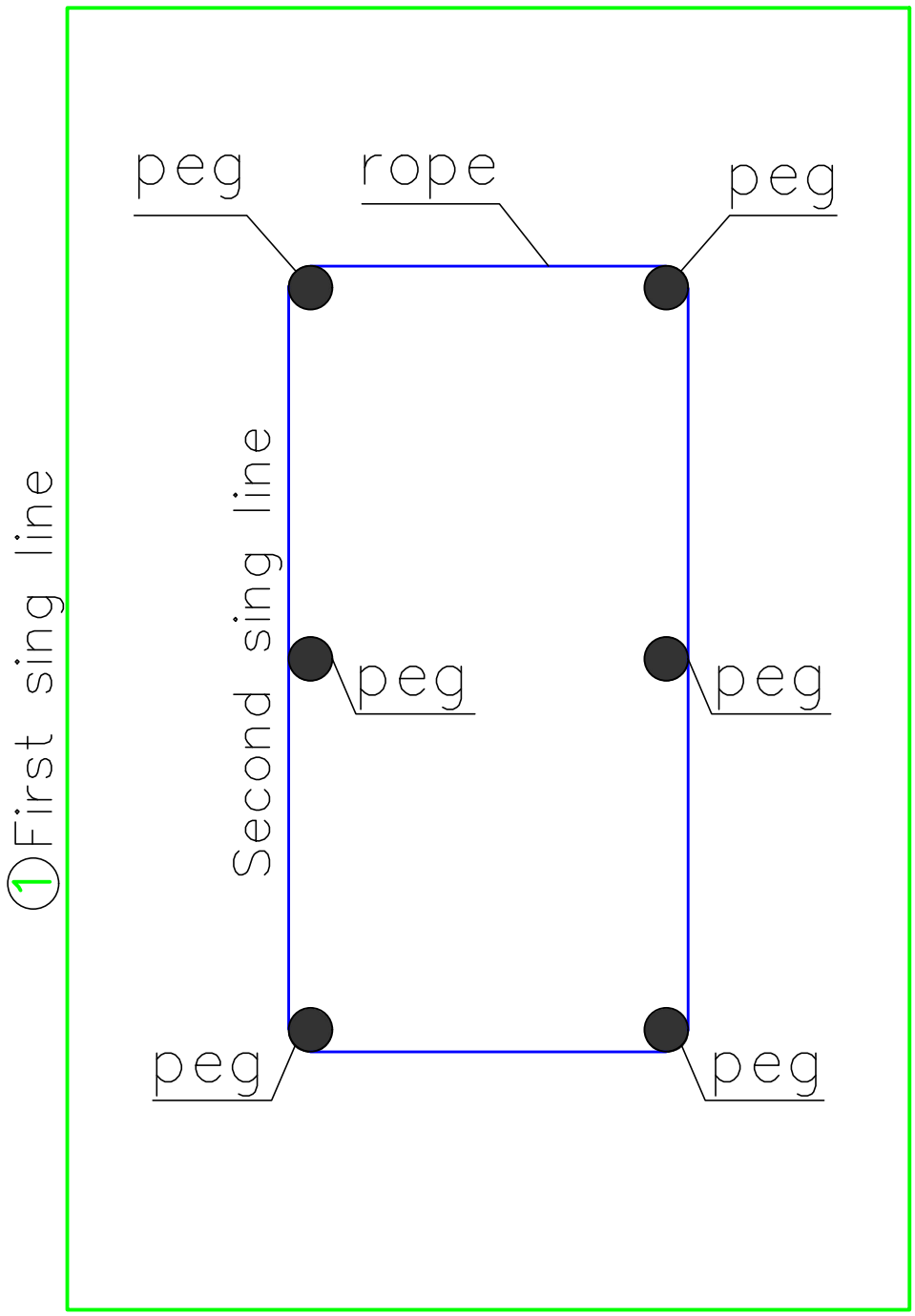
Keep the line straight, making sure the additional pegs do not move the line. As shown in the Diagram.



Step 2

The inner second rectangle is marked inside the first rectangle.

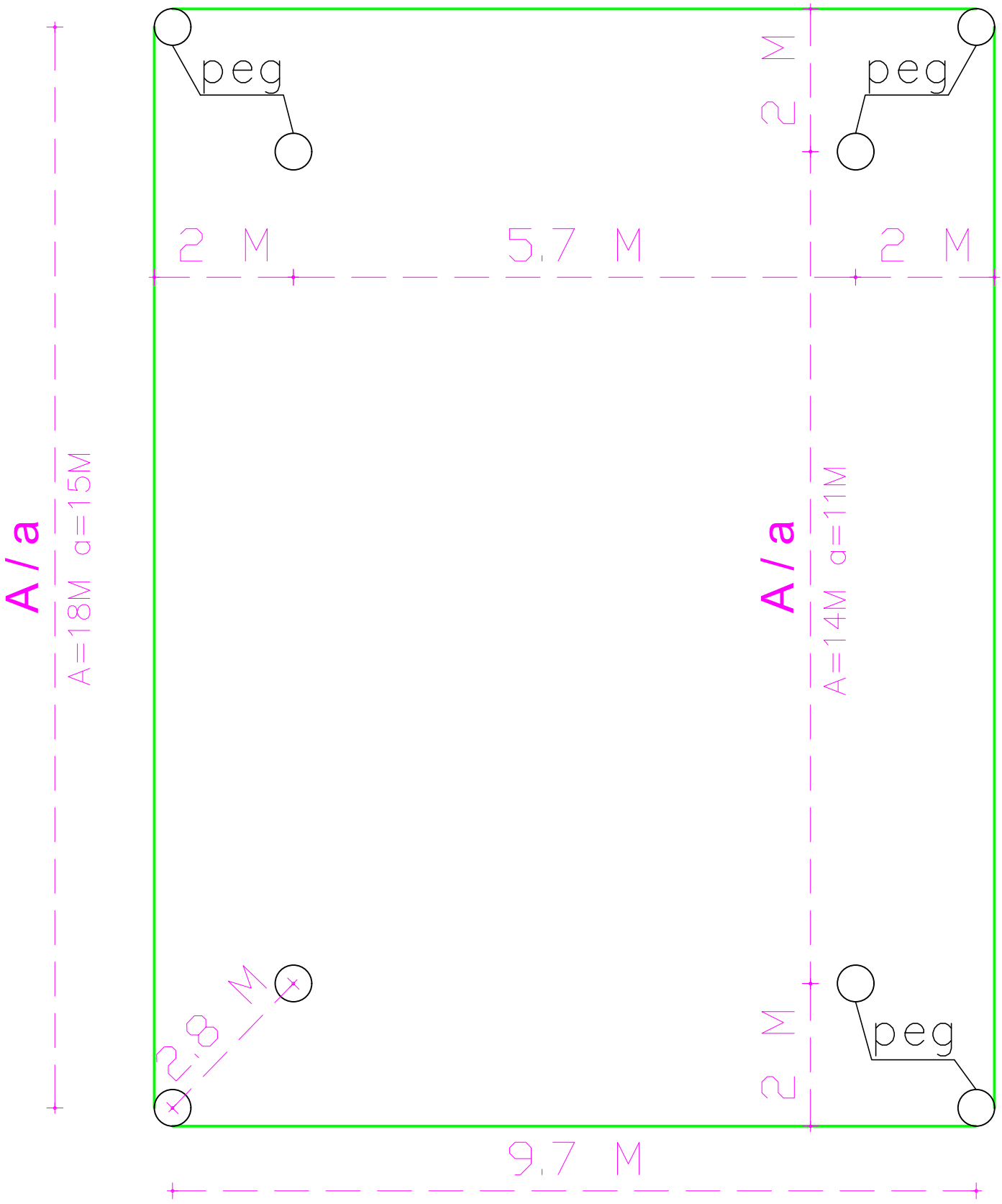
The area between line 1 and 2 represents what will be the embankment of the reservoir.



Total rope: 34 M
Total pegs: 6units

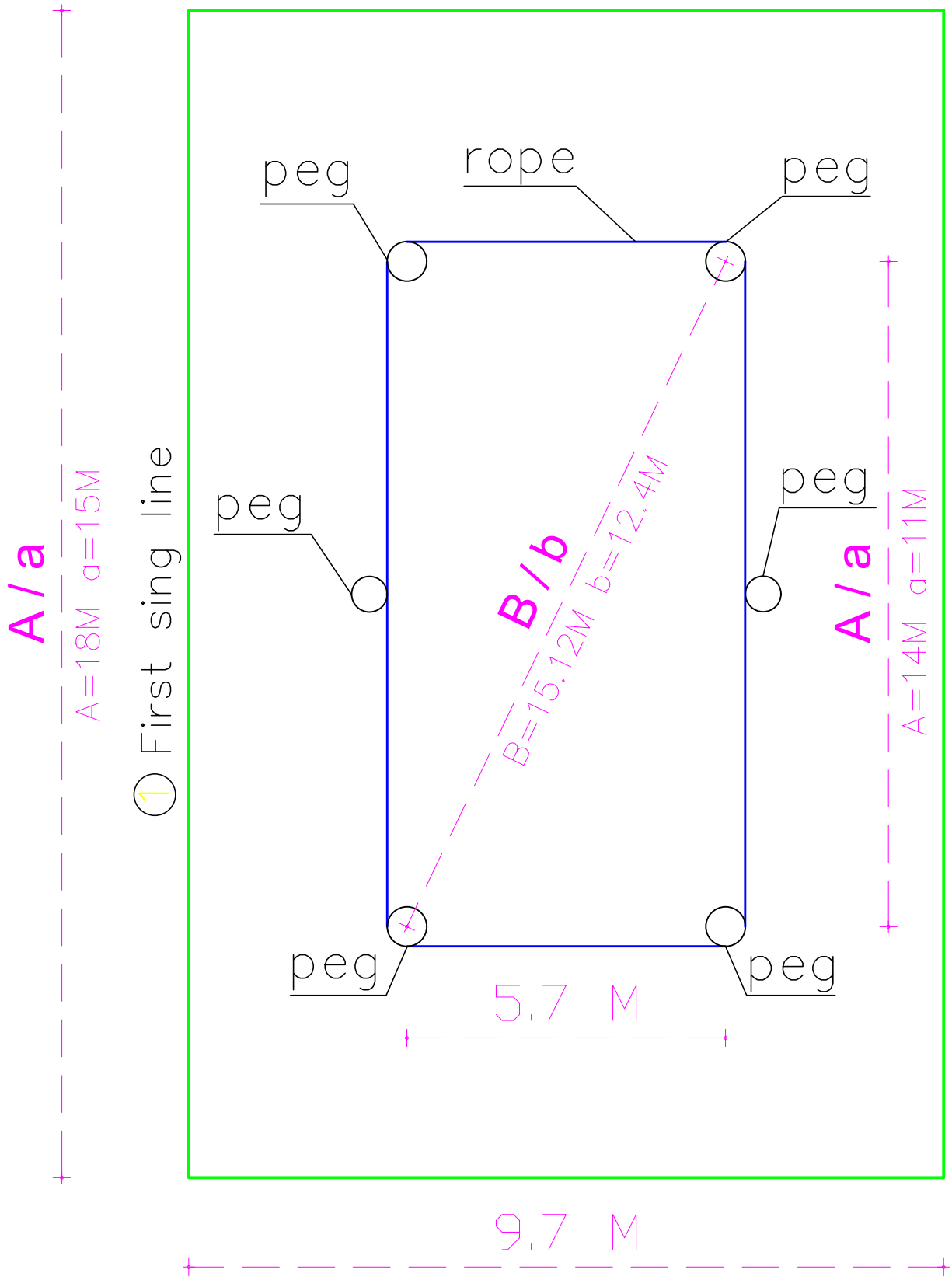
Step 2

The inner corners of the second rectangle need to be defined according the diagram. 2 meters by 2 meters from the first rope and 2.8 meters diagonal from the corner peg of the first rectangle.



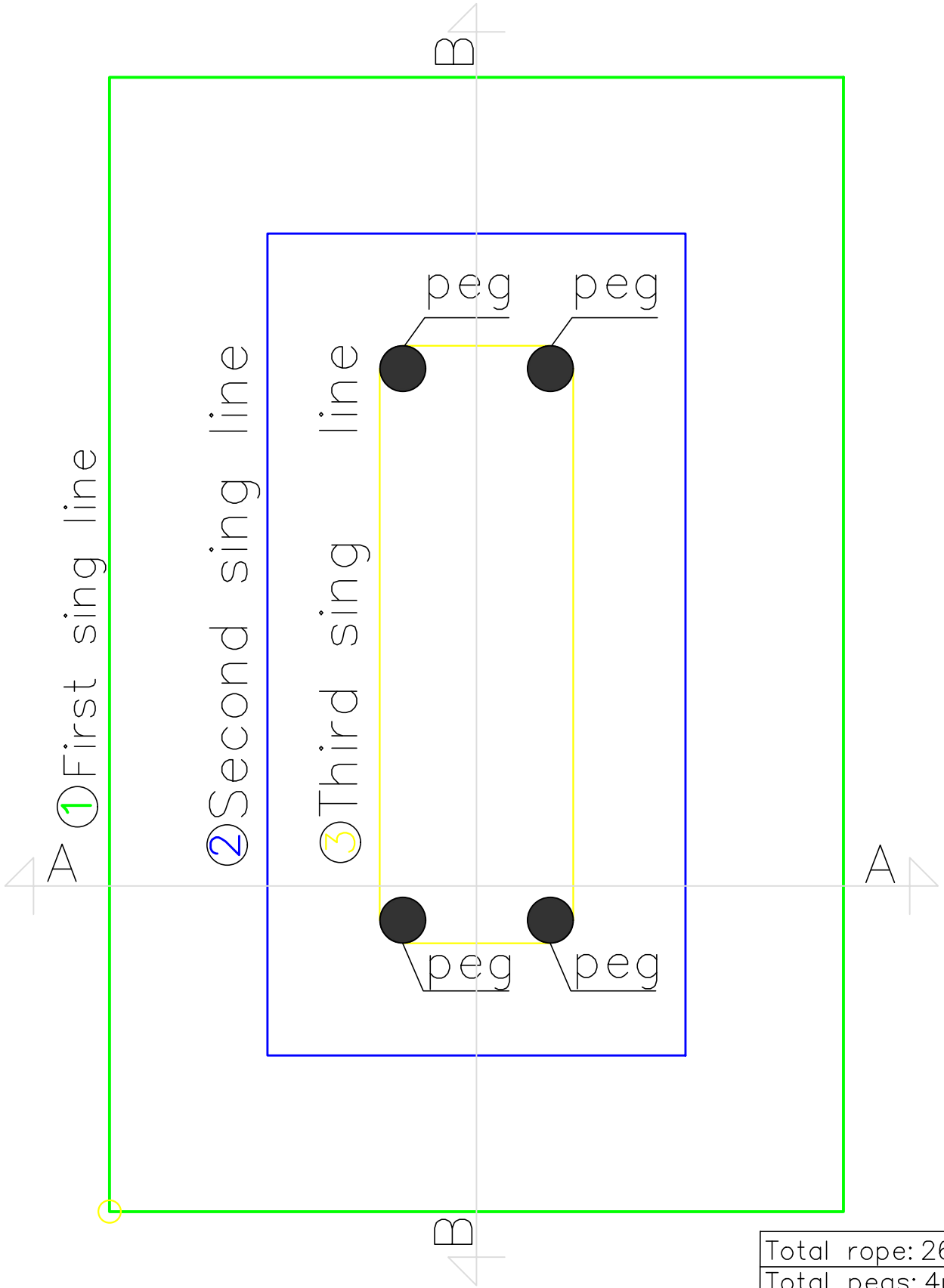
Step 2

After the 4 pegs of the second rectangle are set than a rope can be tied around the four corners.
The diagonal between corners of the second rectangle should be measured (12.38 meters).



Step 3

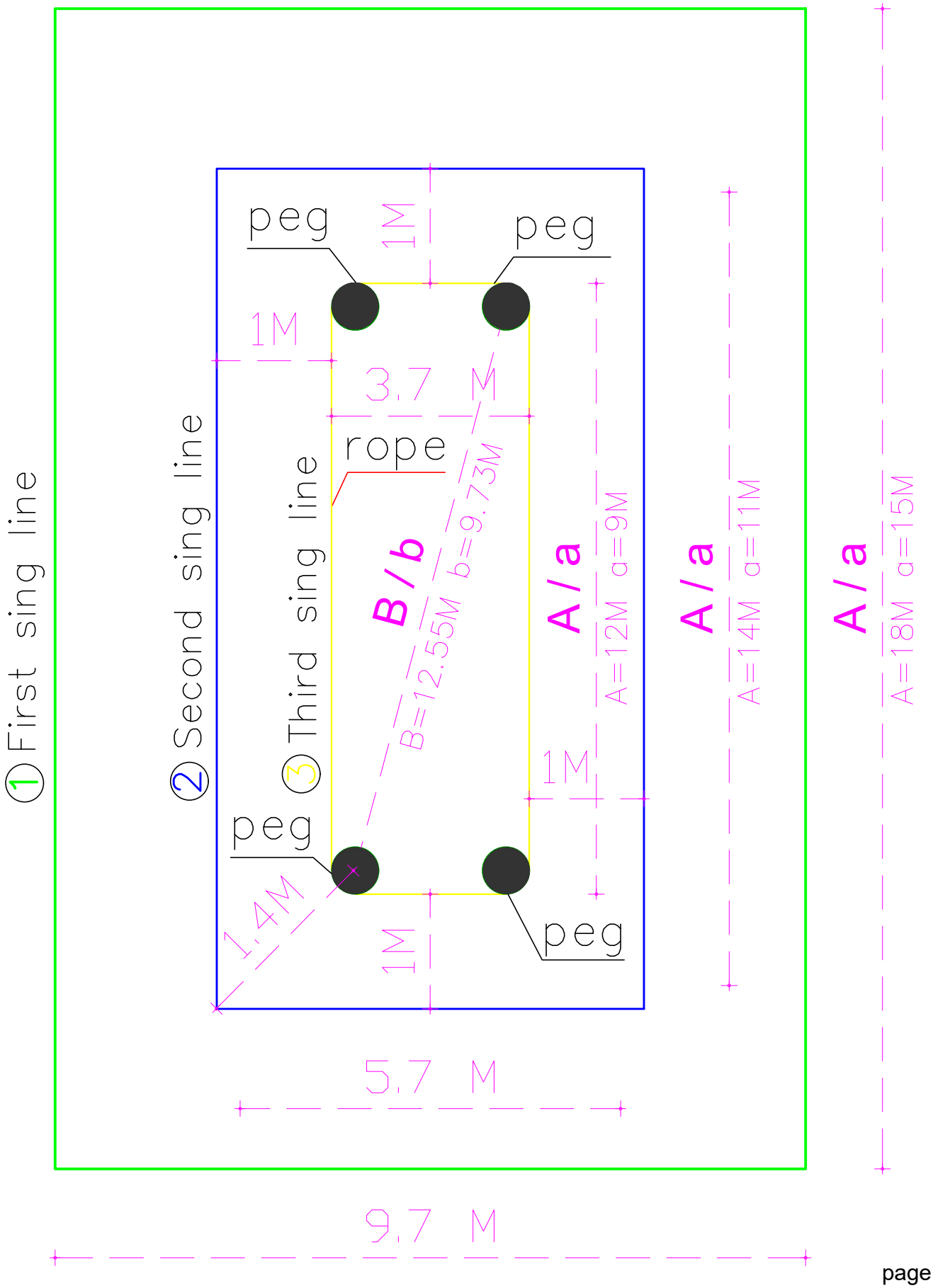
The digging of the reservoir begins from rectangle 2to 11rectangle .3
All of the soil that is excavated needs to be placed between the 1st and 2nd rectangle in order to create the embankment.



Total rope: 26 M
Total pegs: 4units

Step 3

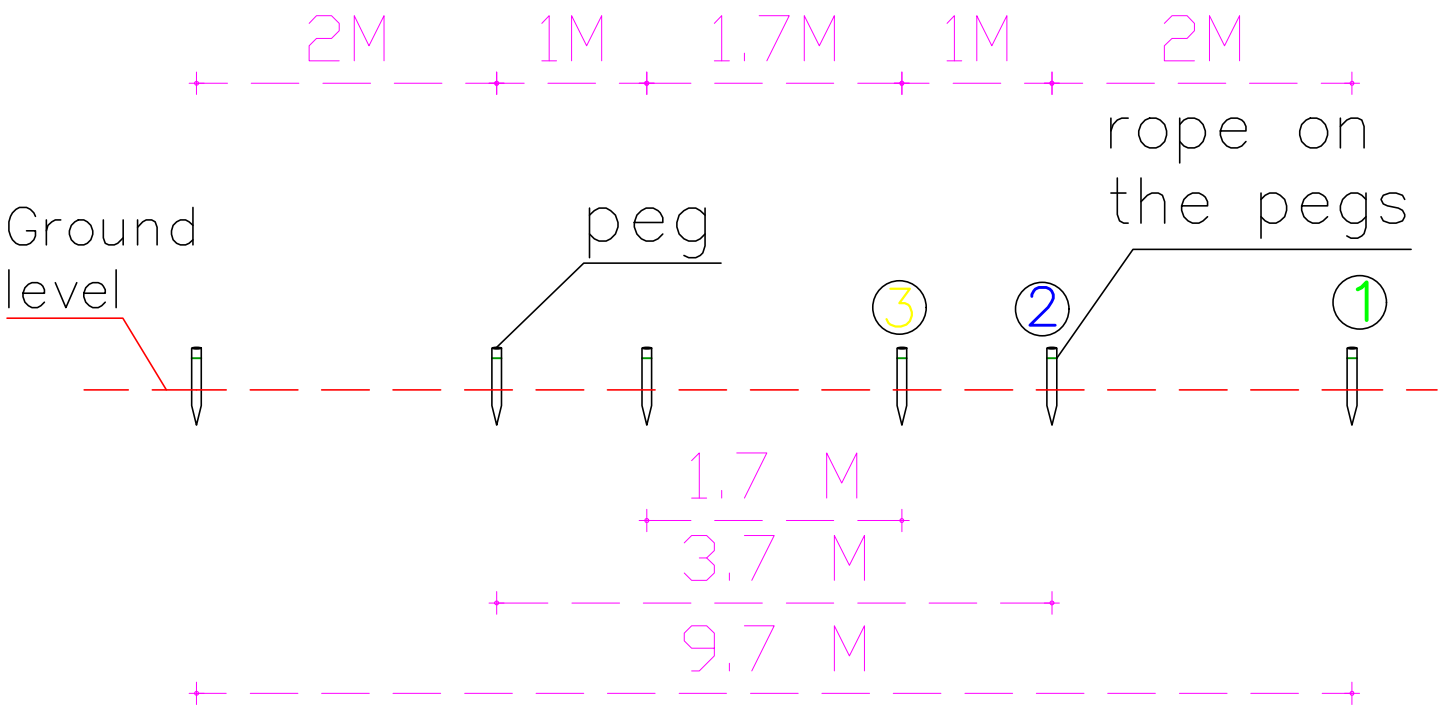
The marking of the pegs of the third rectangle is similar to the process of the 2nd except according to the dimensions in the diagram.



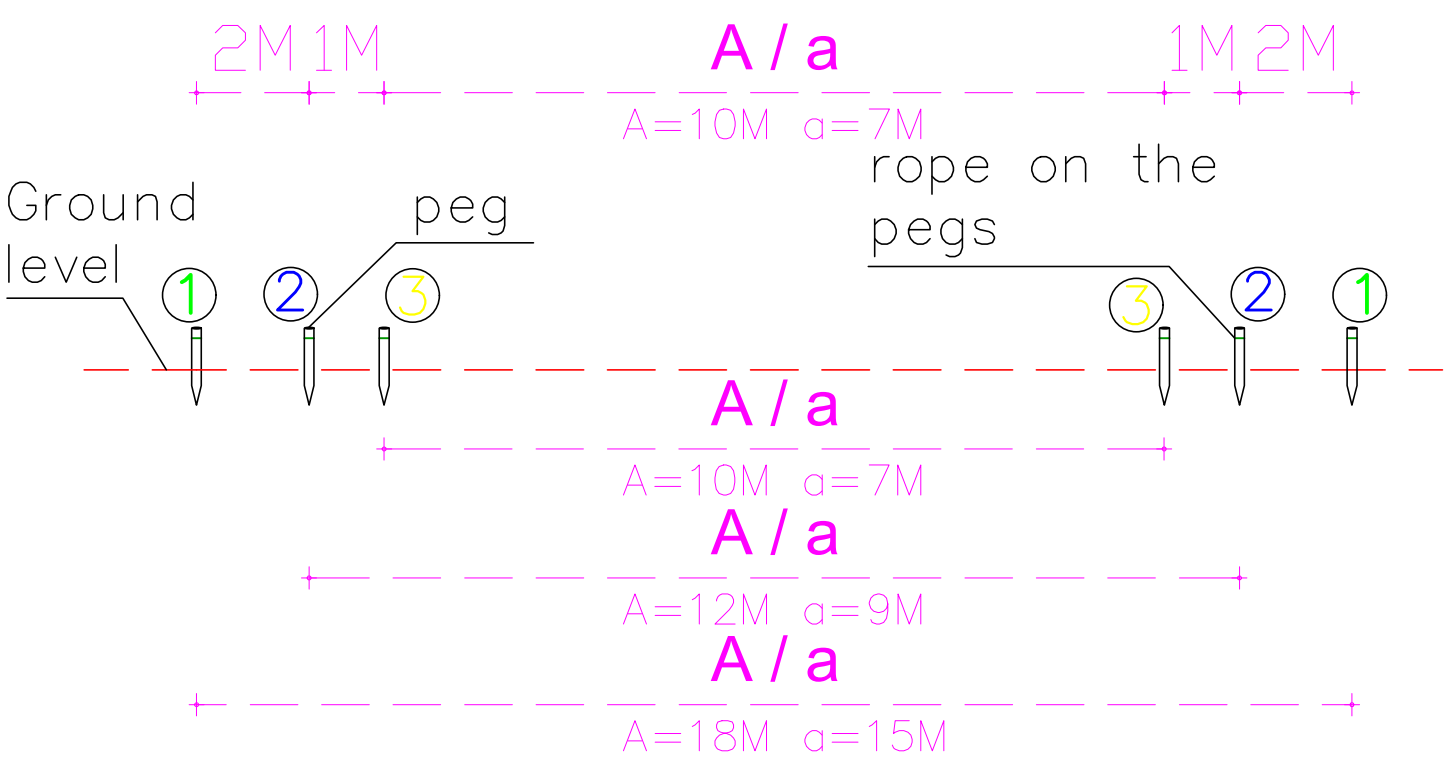
Step 3

Take time to double check your work and make sure everything is according to the plan. Section A–A is a hortizonal view of the narrow side and B–B is of the wider side.

Section A–A

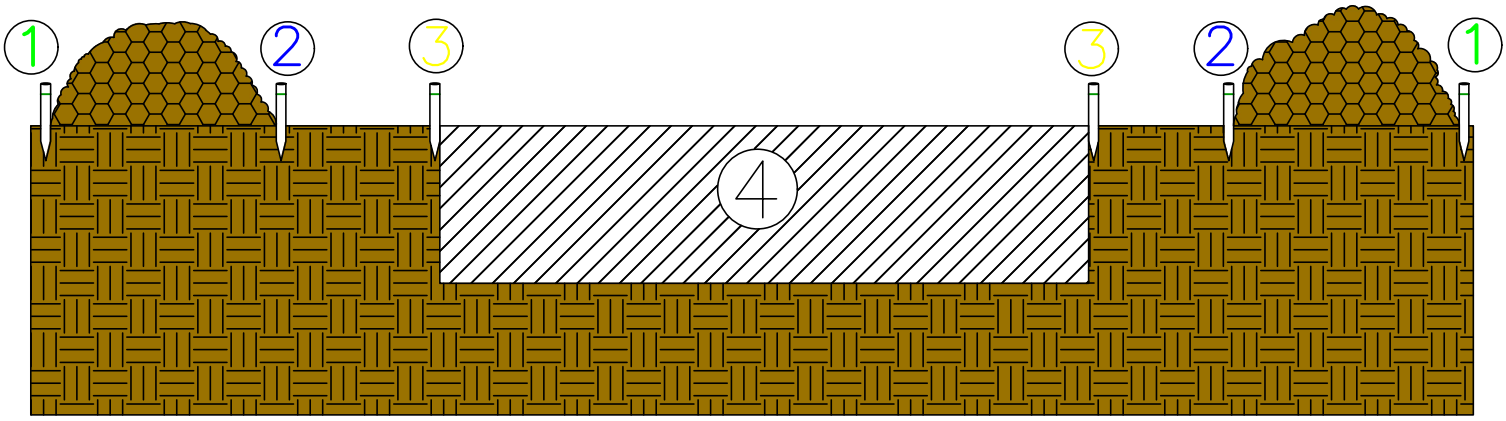


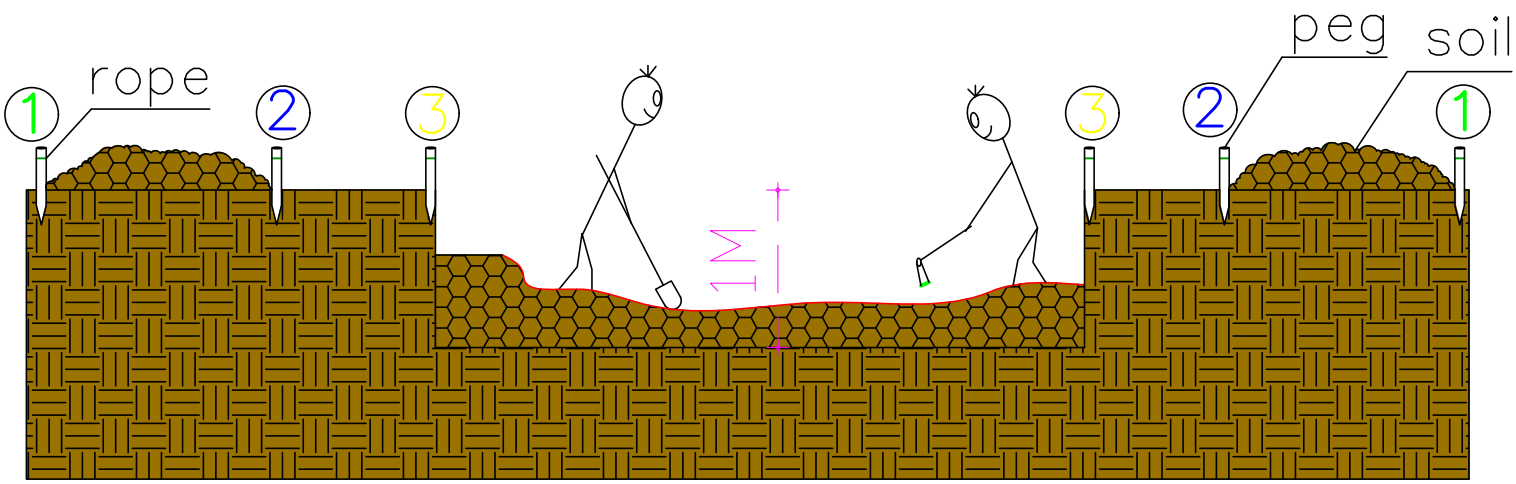
Section B–B



Step 4

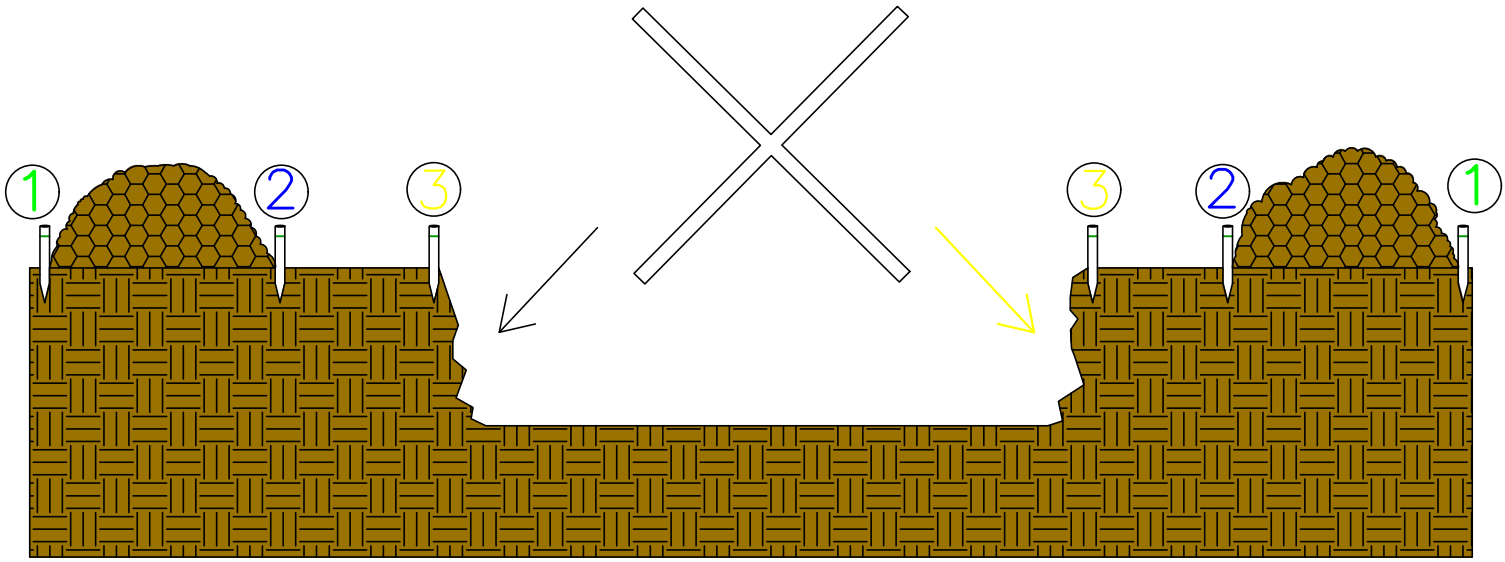
After all dimensions are double checked, start digging, The first excavation is 1 meter depth..

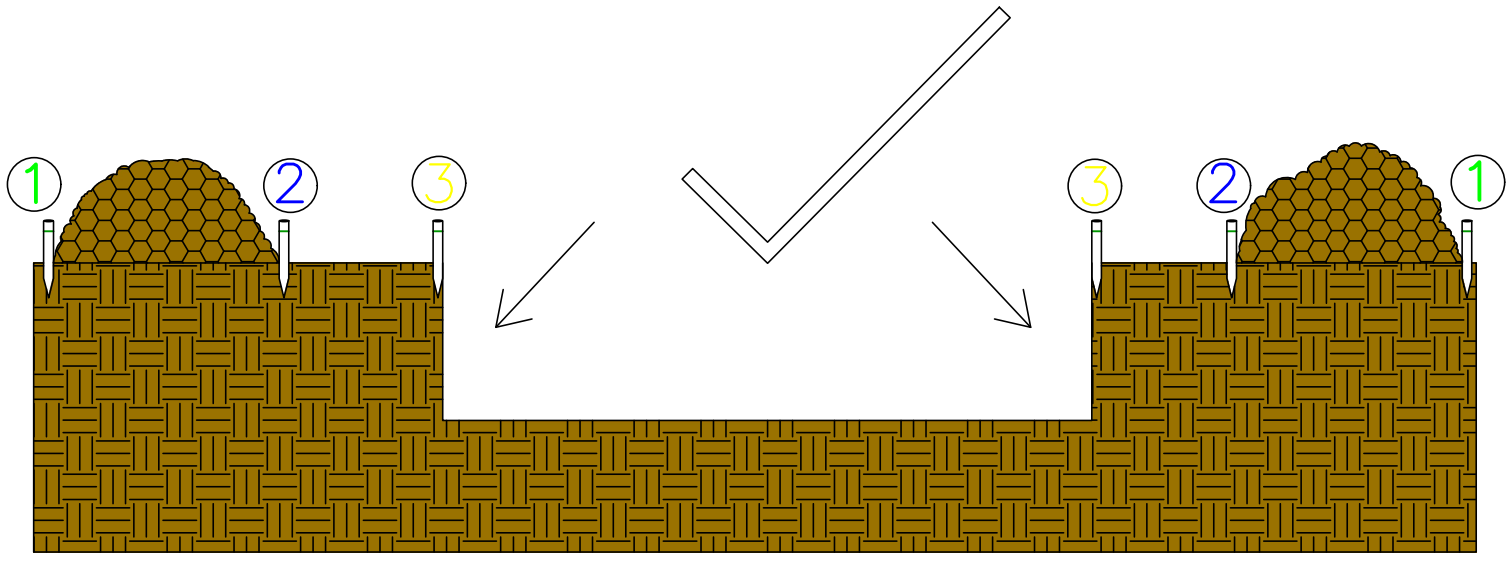




Step 4

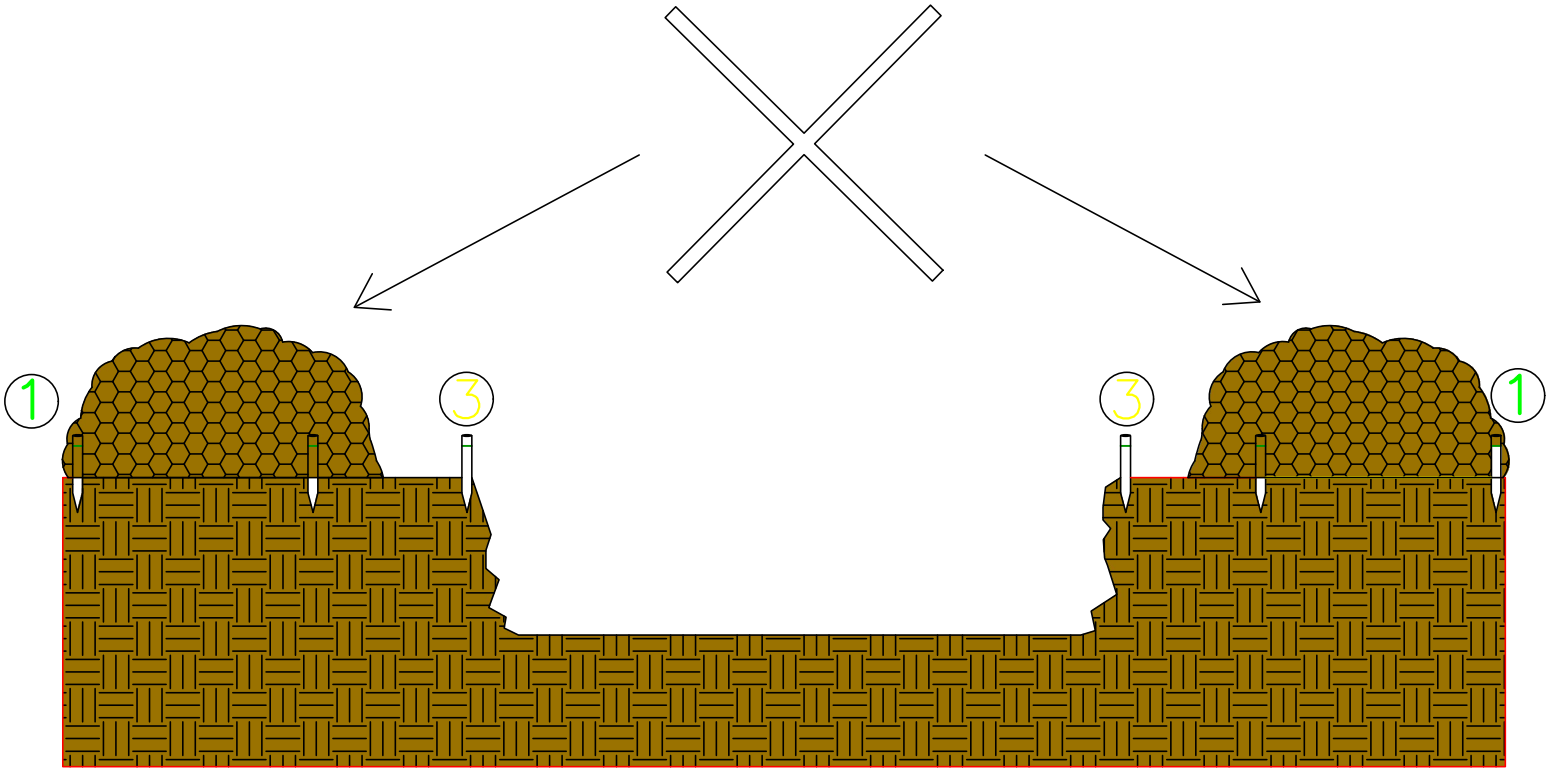
Ensure that all sides and the bottom of the excavation are leveled and straight.

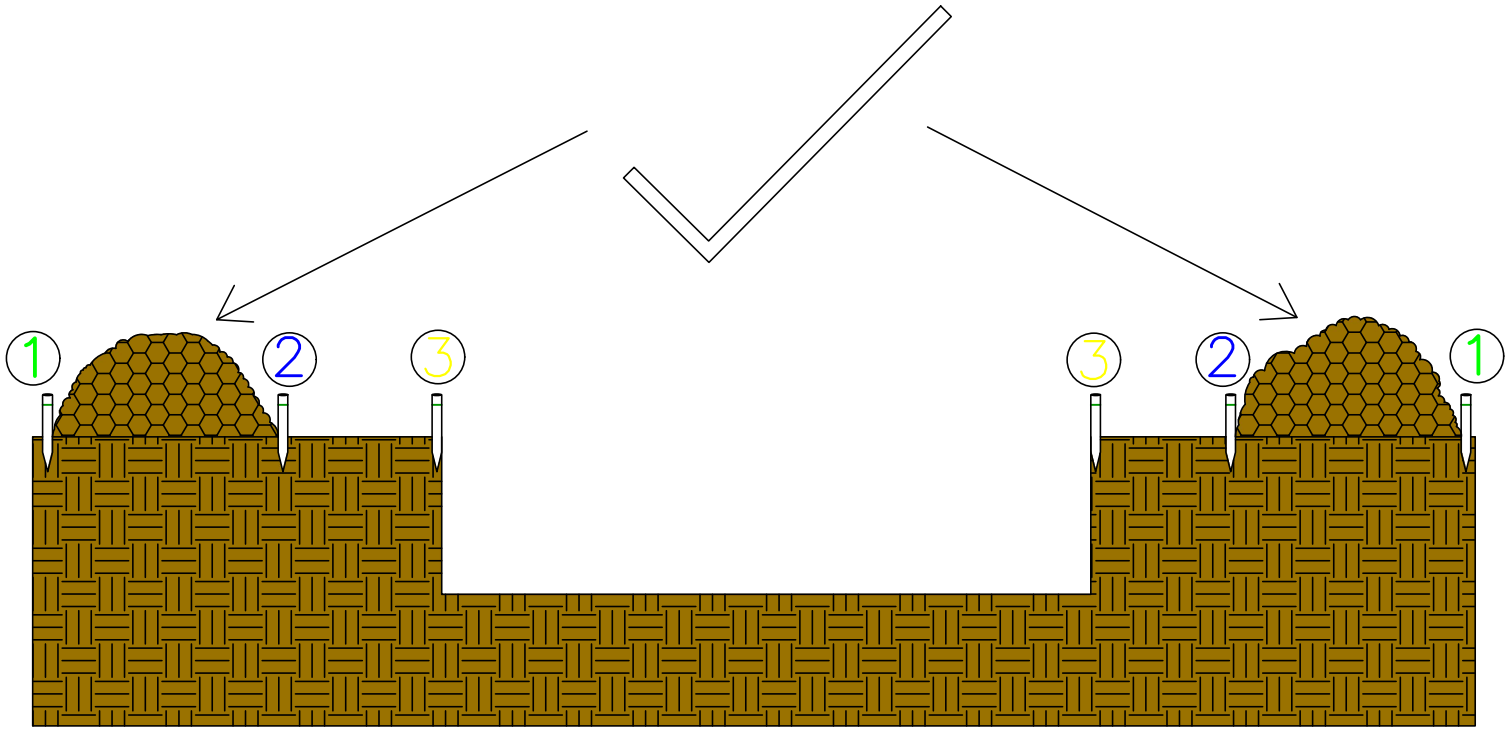




Step 4

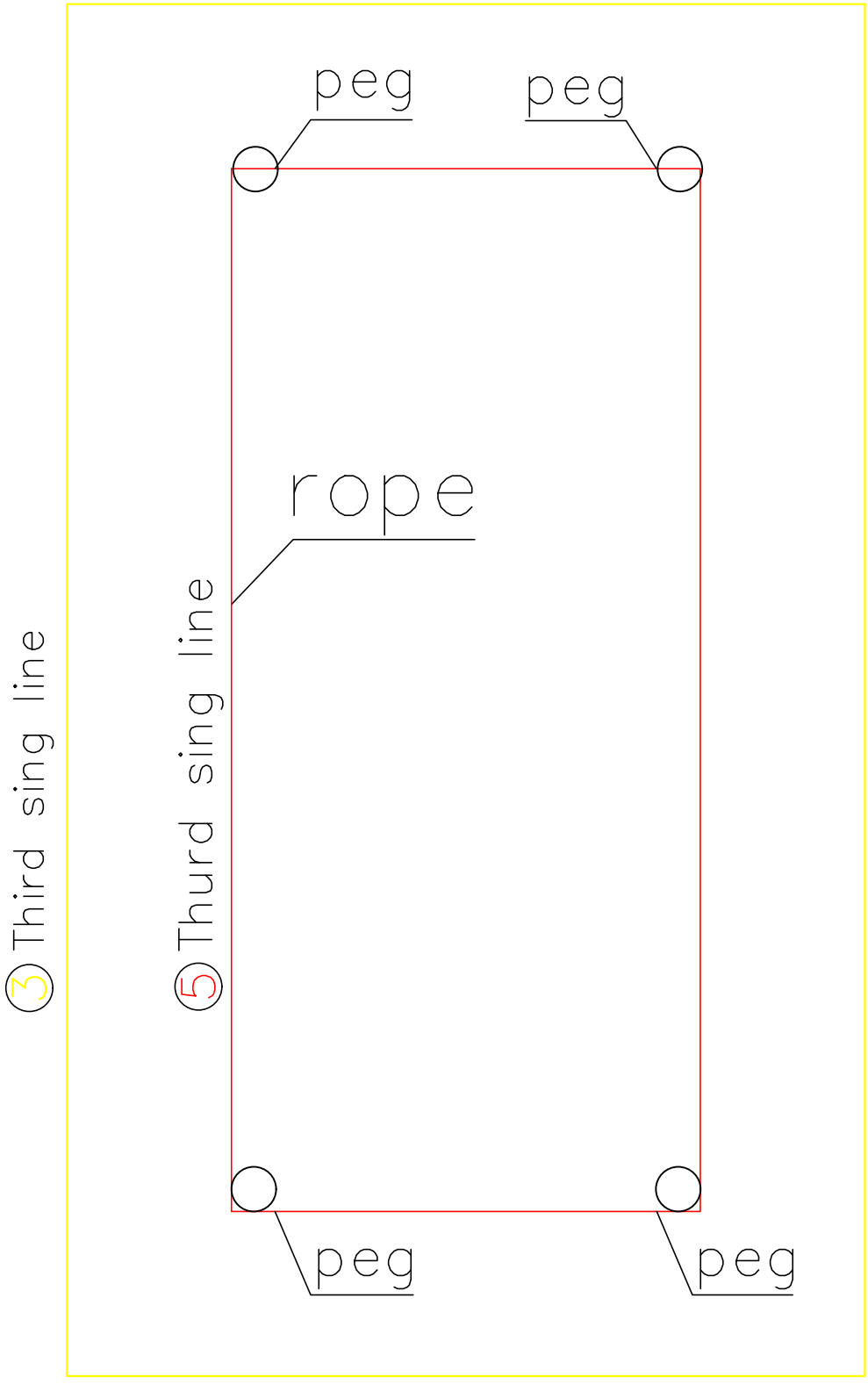
The soil that was excavated should be placed in between rectangle 1 and 2, ensuring that it is not on
the line, but between the ropes.





Step 5

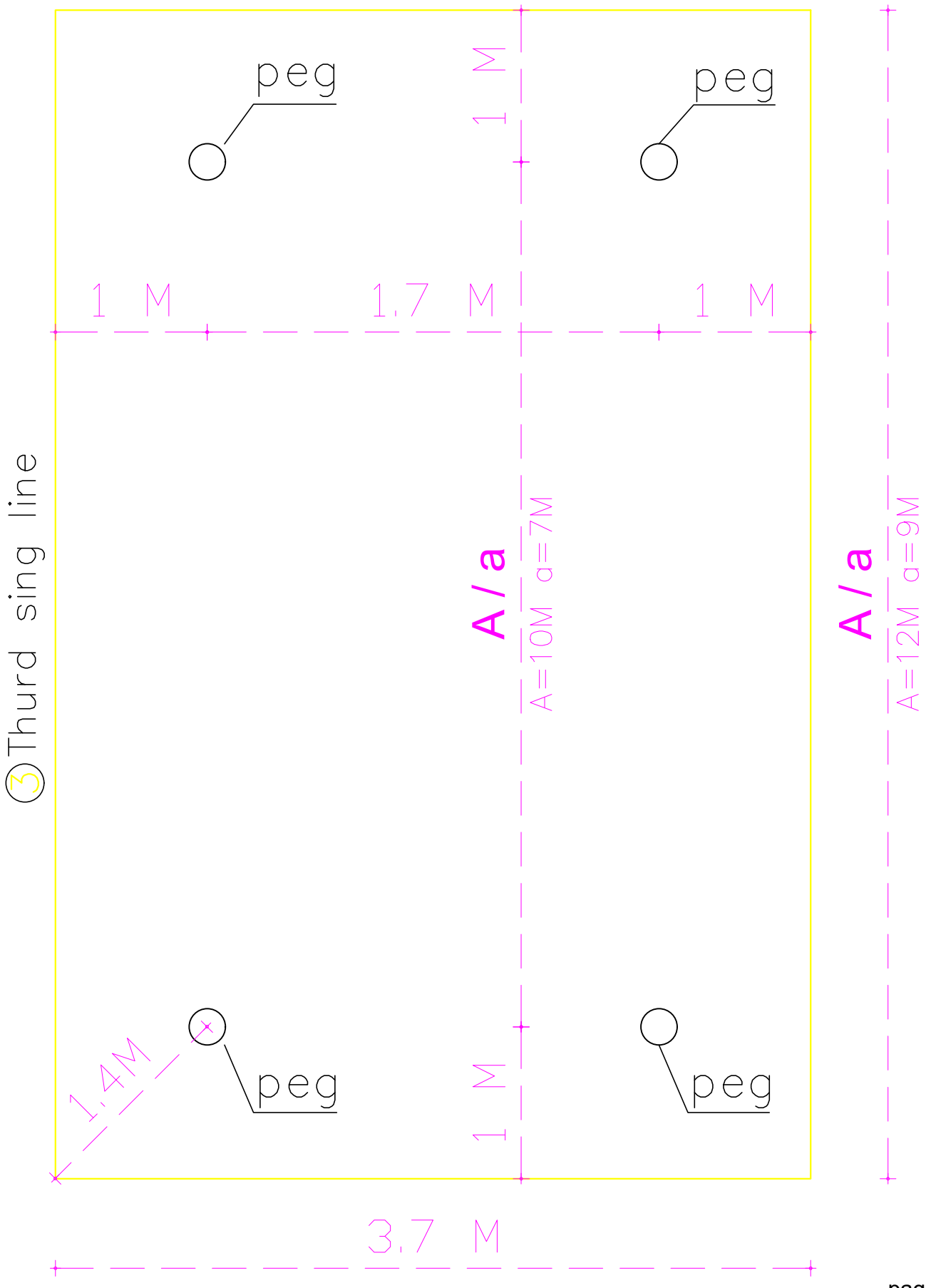
The 4th rectangle will be marked following the excavation of rectangle 3. The process of marking is similar to the previous rectangles.



Total rope: 26 M
Total pegs: 4units

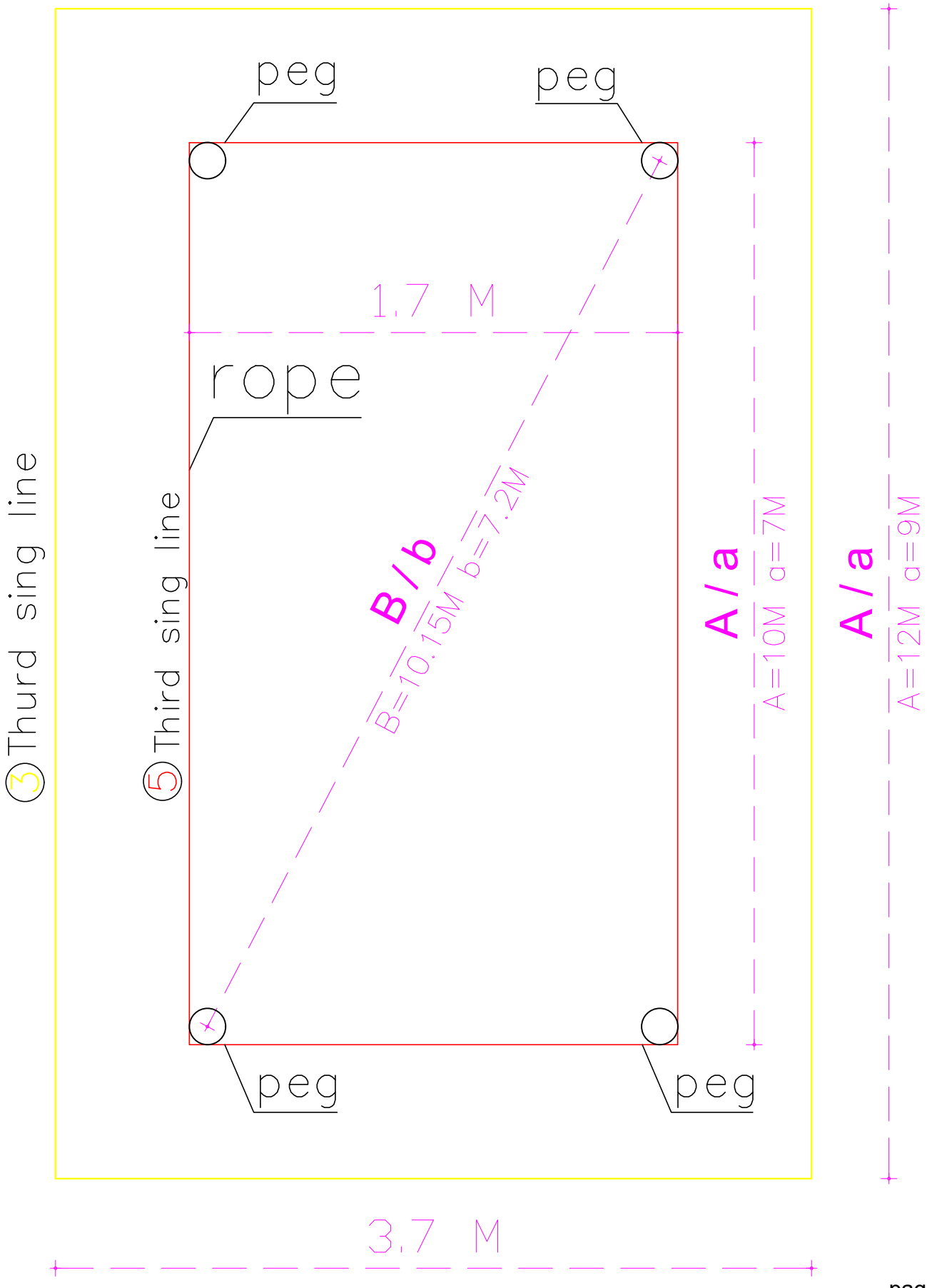
Step 5

The marking of the pegs of the 4th rectangle is similar to the process of the 3rd except according to the dimensions in the diagram.



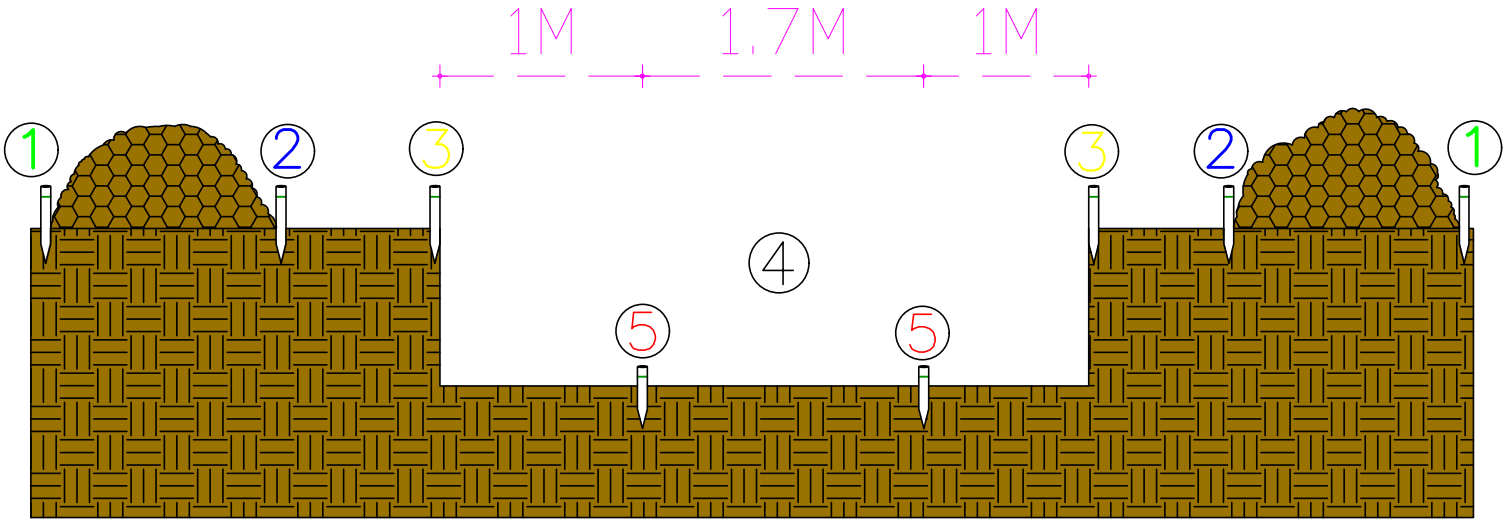
Step 5

After the pegs have been placed in the 4 corners, tie a rope around and make sure all dimensions are according to the diagram. Additional pegs can be placed on the wider side to keep the rope in place.



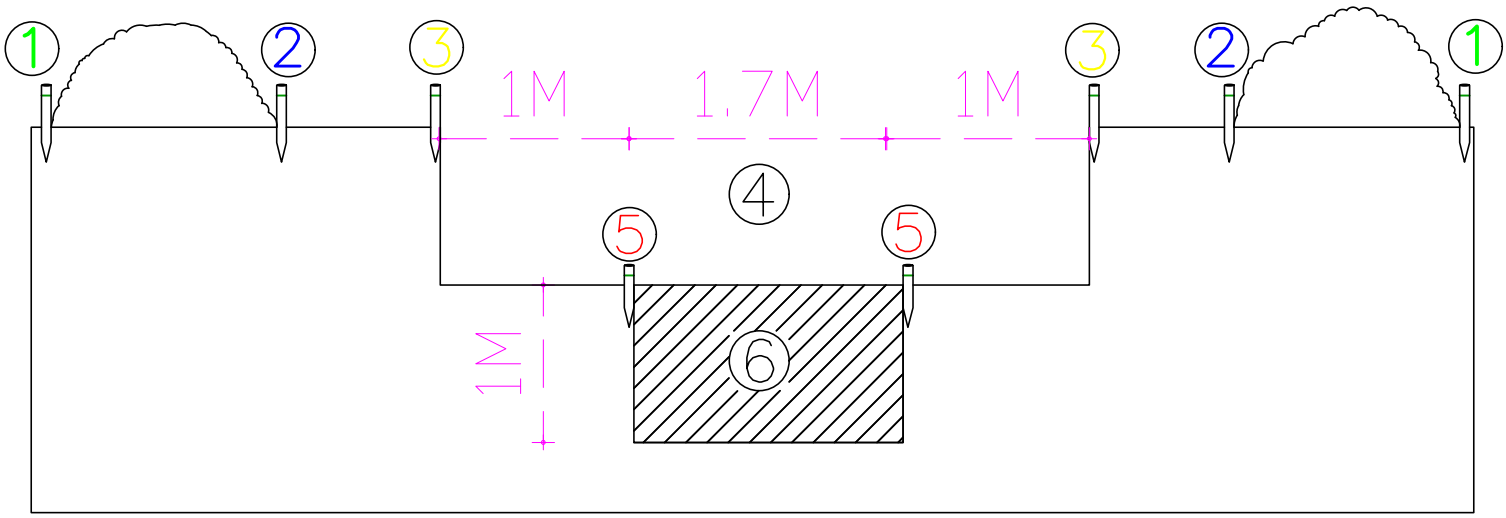
Step 5

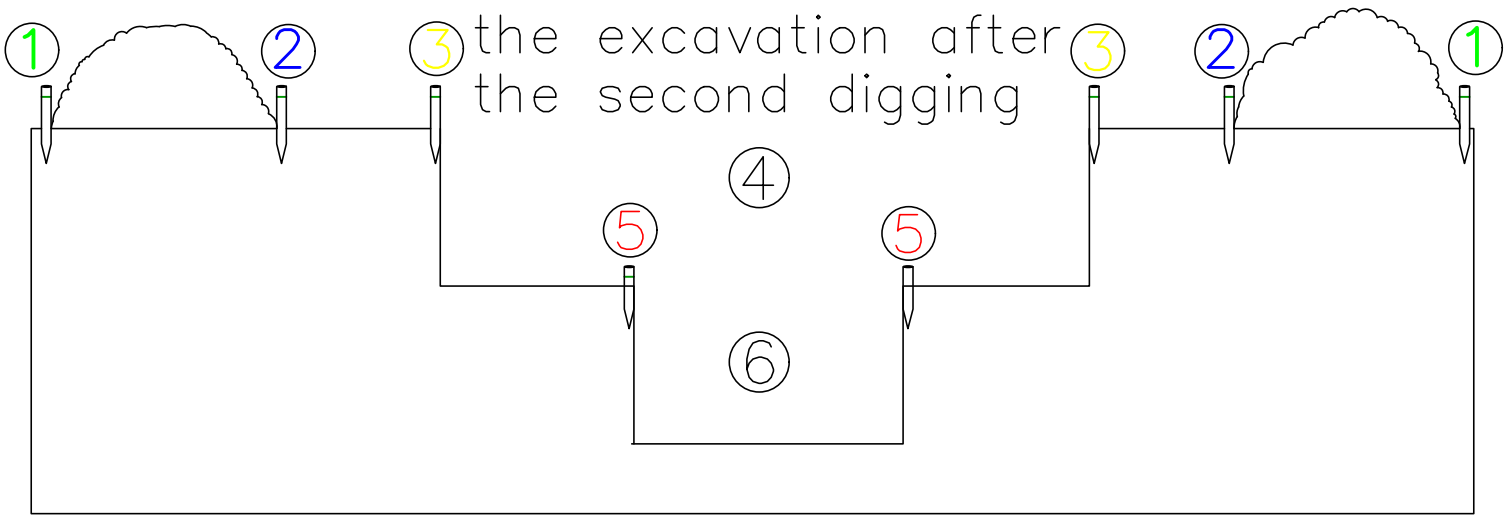
Double check the measurements between rectangle 3 and 4.



Step 6

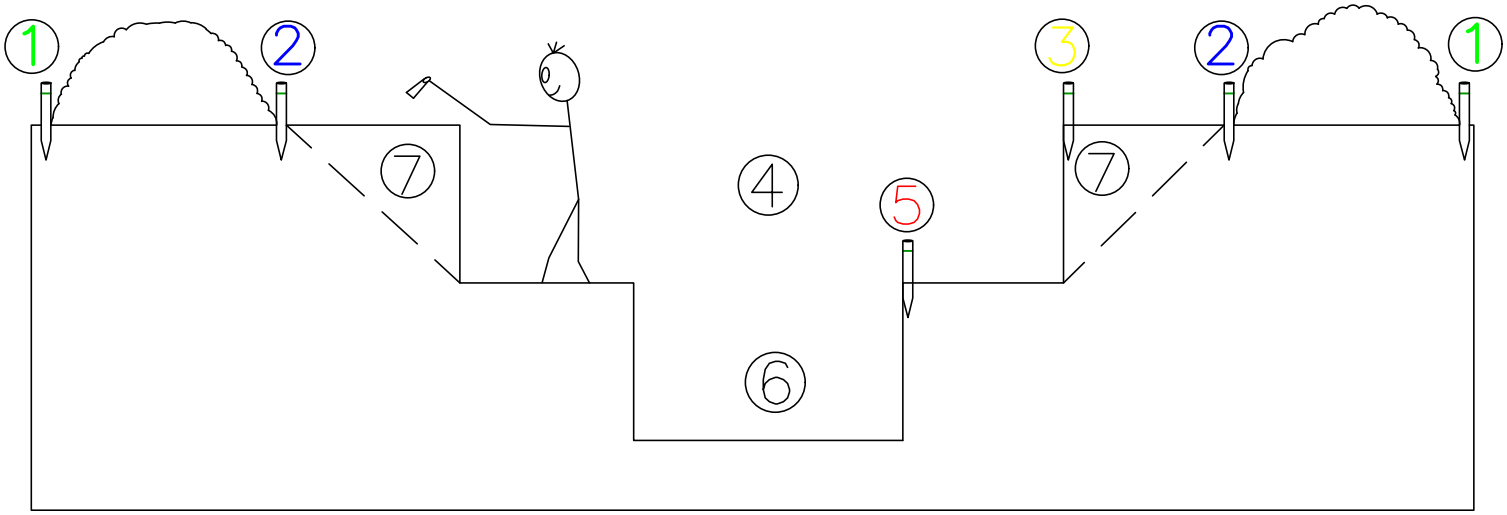
After all dimensions are double checked, start digging,
The second excavation, 1 meter depth.
All removed soil is to be added to the embankments.

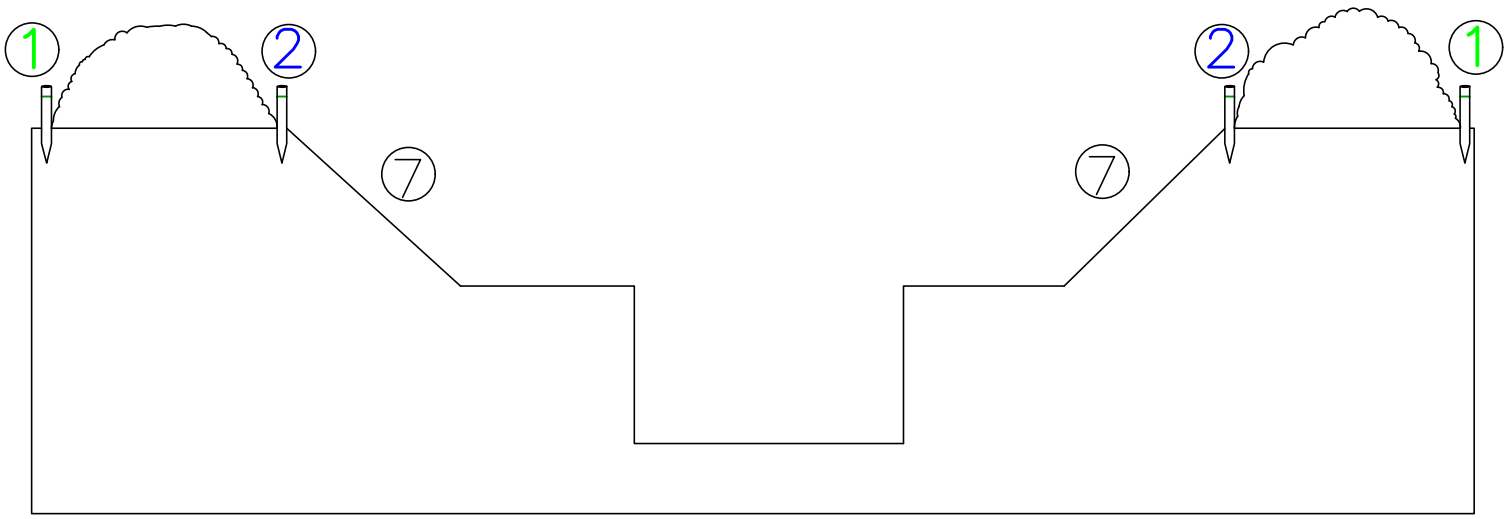




Step 7

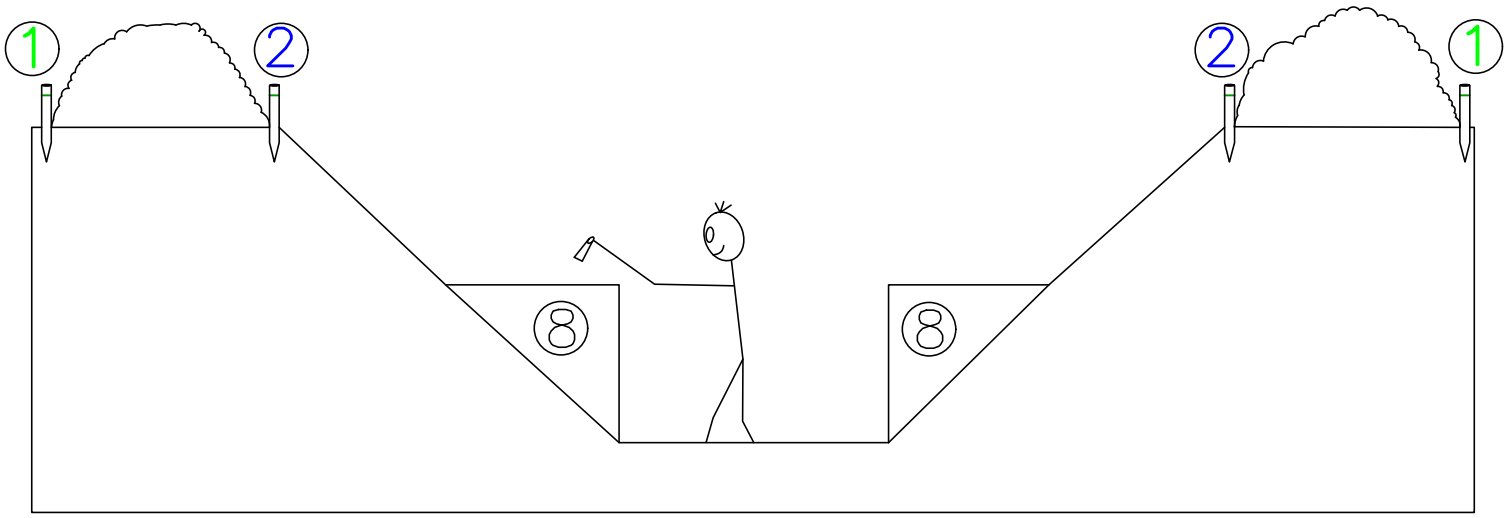
Dig the ferst sloop. start from up!

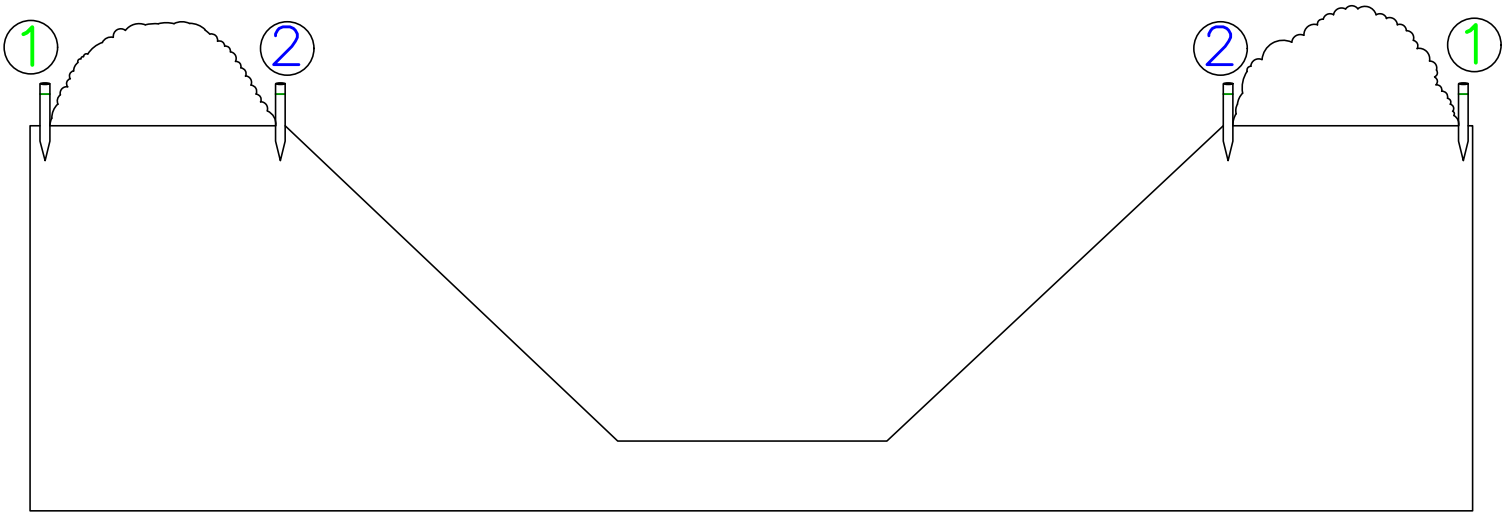




Step 8

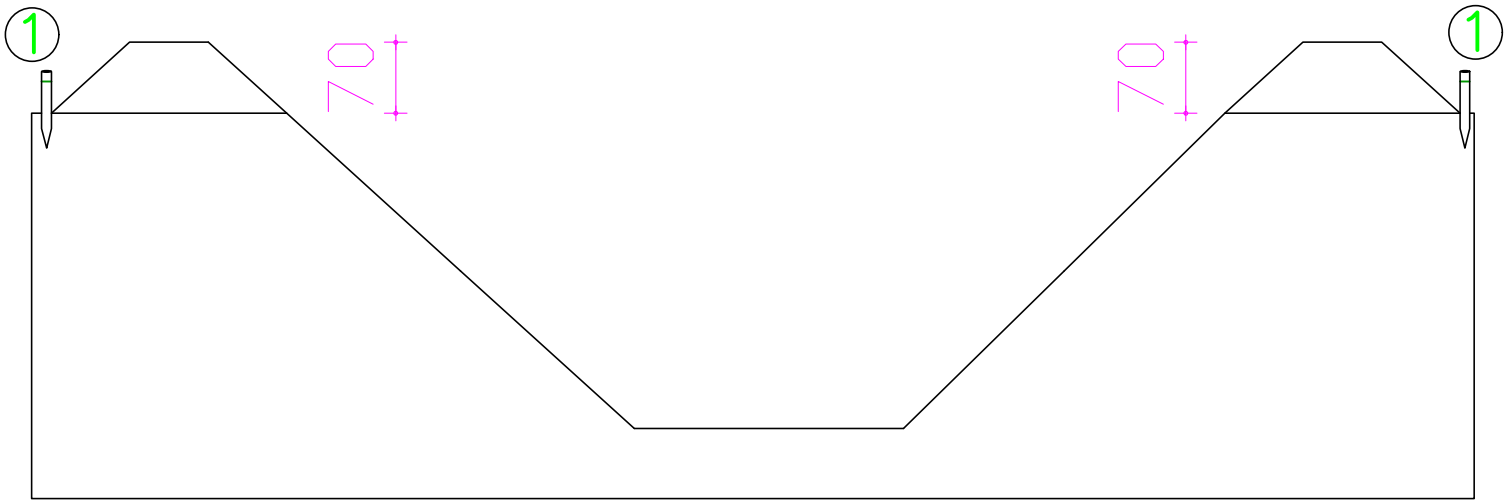
Continue to remove the steps and to straighten the slope between rectangle 3 and 4. Work your way down from 3 to 4. All removed soil is to be added to the embankments.





Step 9

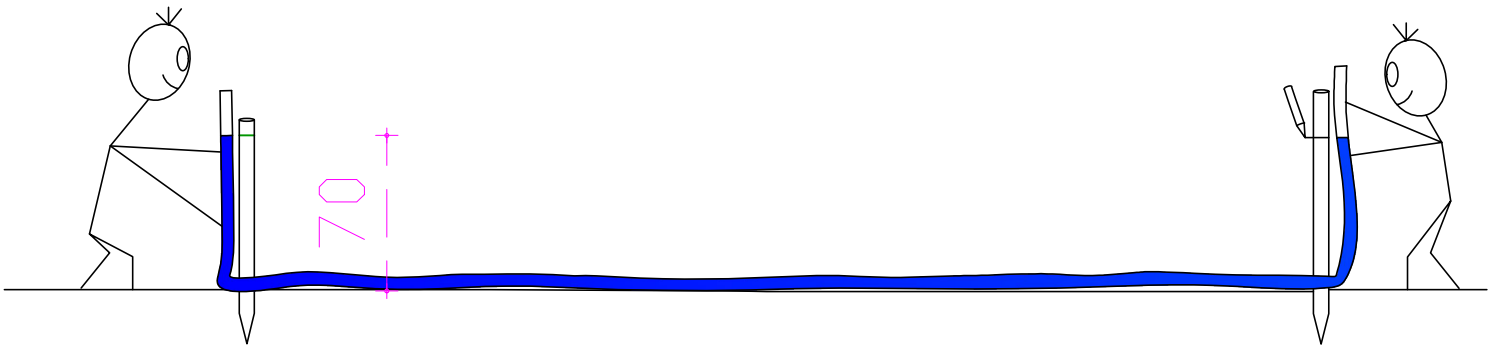
Preparation of the embankment.



To prepare the embankment we use a water level to ensure all sides are of equal height. The embankments will be 70 centimeters above ground.
To ensure equal height the highest of the four corners will be used as the reference point.

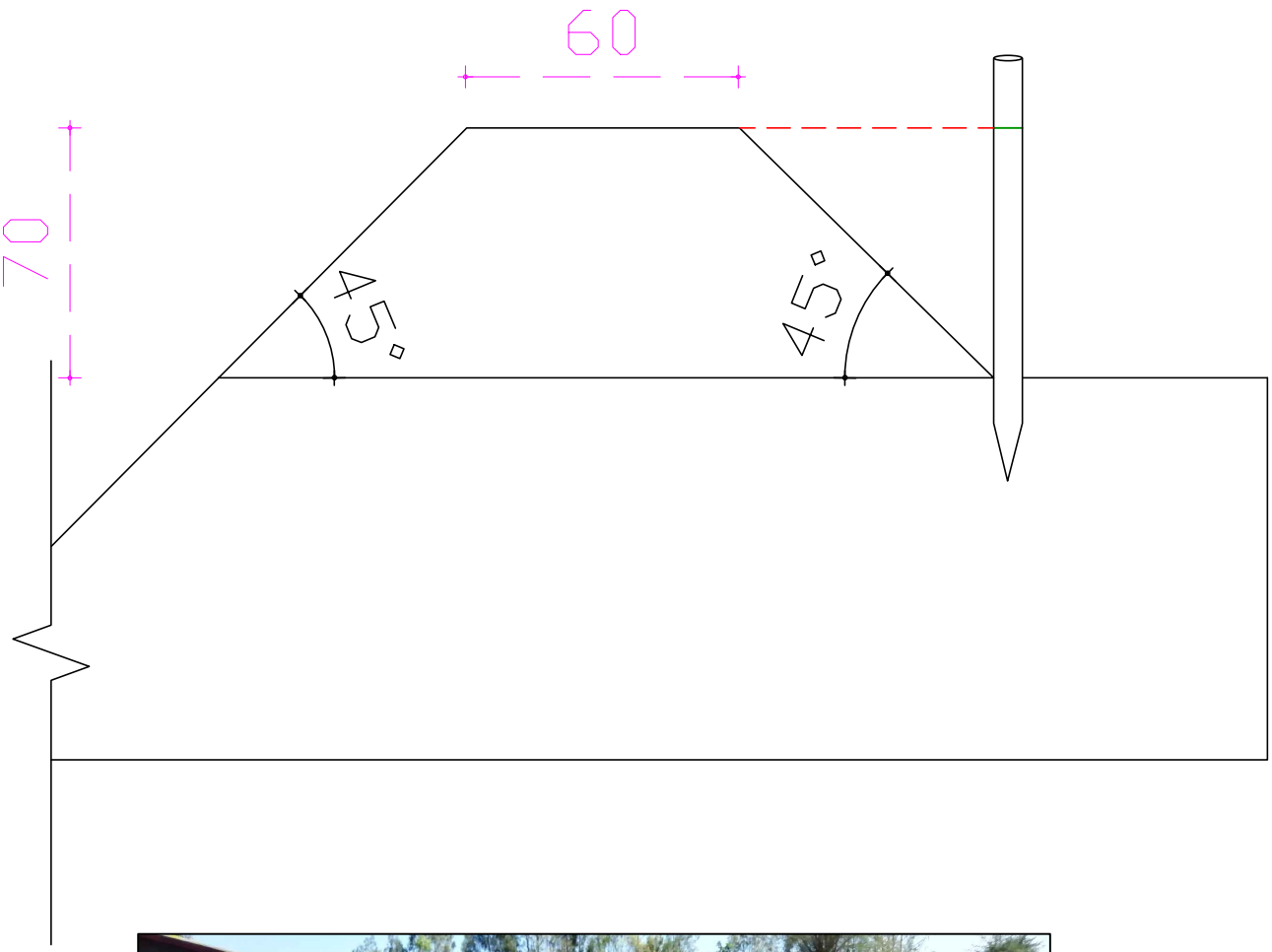
1) Double check that the four pegs of rectangle one have not been moved and are the original dimensions
2) using the water level determine which of the corner pegs of square 1 is the highest.
3) mark 70 centimeters from the ground on the highest corner peg.
4) Mark the equal height in the other 3 corner pegs.

put the water line on the sign → sign on the peg the next sign



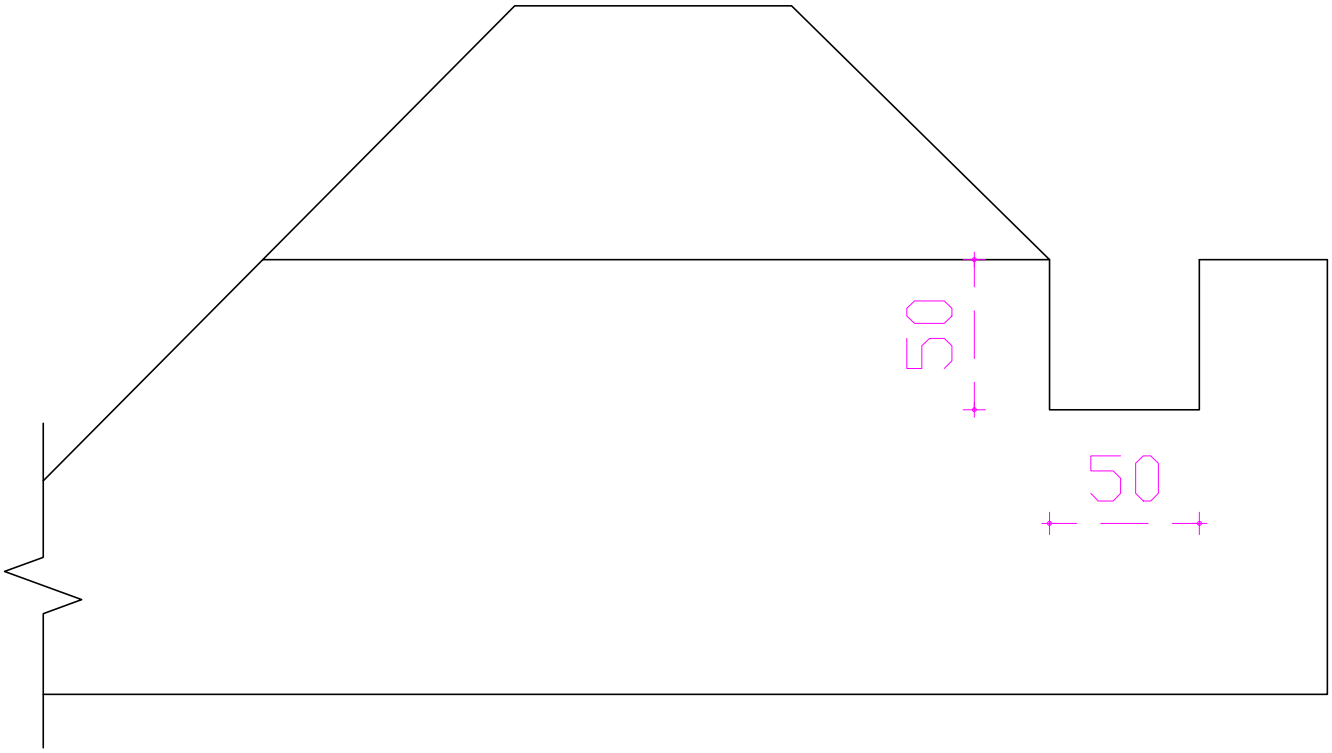
Step 9

Tie a rope between the four corner pegs at the measured height. Raise the embarkment to the rope around the reservoir.



Step 10

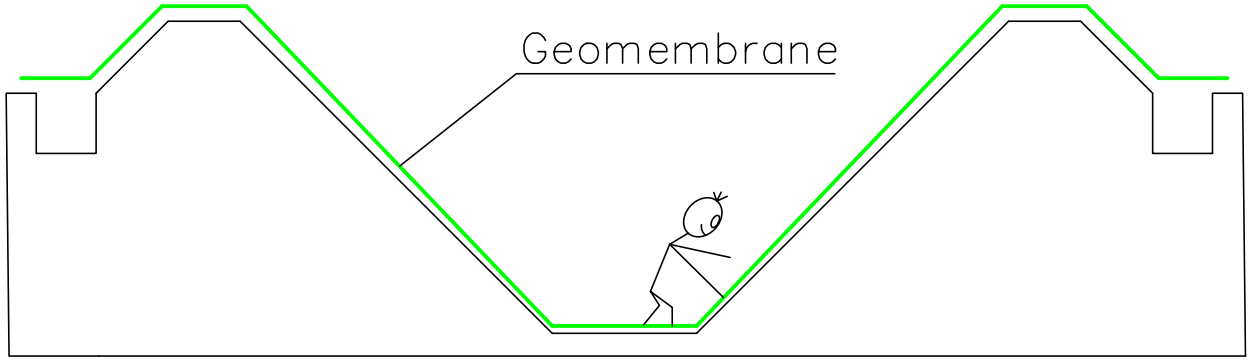
Following the raising the embarkment, dig a trench around the exterior of the embarkment.



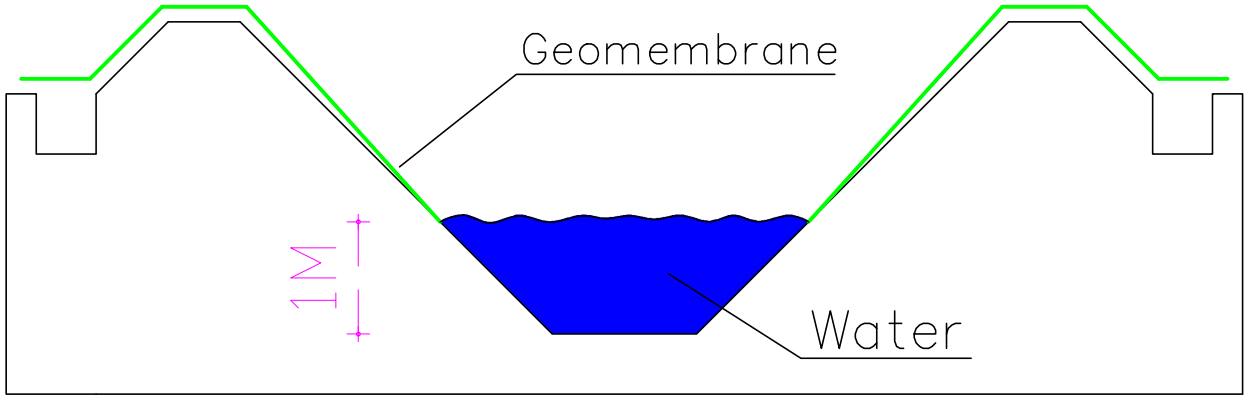
Step 11

To cover the reservoir, follow the stap one by one.

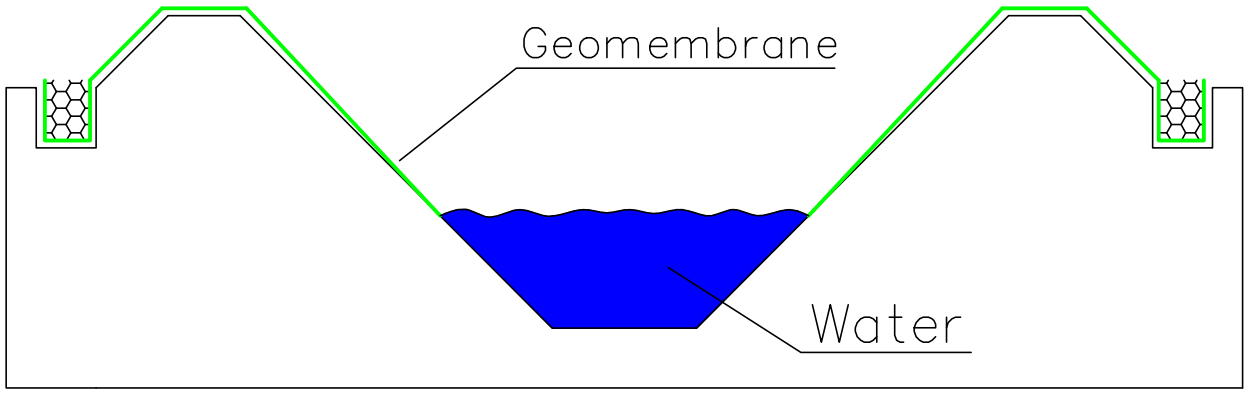
1) Before, double check the reservoir is clean. then cover by the Geomembrane and fold it in the corner of the reservoir



2) Fill the reservoir with a water minimum 1 meter . the geomembrane will sit down in the place wits the water weight.



3) In this moment push the geomembrane to the tranch around the reservoir and fill the tranch with soil.



Step 11