CHECKING STARTING ELEVATIONS FOR POSITIVE FLOW, PROPER INFLOW/OVERFLOW, & DIGGING DEPTH

1. Determine inflow elevation drop (or gain)
Subtract ending pipe/swale elevation (at RG entrance) from starting pipe elevation (downspout, etc.)

```
in - __________ in = __________ in
```
Inflow elevation drop

(Example: 49” - 52” = -3” – this number is negative because of the drop; it tells you that your natural topography is 3 inches lower at the point you intend to bring the inflow into the garden than at the point where the water is being collected)

Do you have positive flow into the garden? Your inflow needs to drop at ¼-inch per foot of inflow run. Therefore, if you already have a natural 3-inch drop in elevation, as in the example above, the distance between your starting elevation (e.g., downspout) and the entrance to the garden could be up to 12 feet away. Of course, you will also create a swale or bury a pipe, which will lower the elevation as the water flows towards the garden, but you must always keep track of the elevation of the starting point at which water could back up.

2. Next, determine elevation drop (or gain) at middle
Subtract elevation (at middle of RG) from starting inflow elevation

```
in - __________ in = __________ in
```
Elevation drop at middle

(Example: 49” - 53” = -4”, an inch lower than the inlet location, and 4 inches lower than the start of the inflow)

3. Determine elevation drop at planned outflow location
Subtract ending overflow location elevation from starting inflow elevation

```
in - __________ in = __________ in
```
Total elevation drop

(Example: 49” - 54.5” = -5.5” in, lower than starting inflow, and 2.5” lower than the inlet location)

If your elevation calculations result in a positive number, there is no existing slope and you will have to excavate more deeply to achieve the appropriate balance between ponding depth and safe overflow.

Now, let’s calculate how deeply we want to excavate. In the example above, our topography naturally drops, so we do not have to do extra excavation to ensure that our overflow point is the lowest point. In this case, we want to excavate enough to refill with 18 inches of rain garden mix and leave 6
inches for ponding depth, excavating approximately 24 inches from the lowest point, which in our example is at the overflow location.

So, we’ll remove 24 inches of soil at the 54.5” elevation point, stopping when we get to 78.5”. Follow the guidelines on the soil calculation worksheet for these steps.

Now, we’ll refill with 18 inches of rain garden mix, bringing our new rain garden soil level up to 60.5 inches, which allows 6 inches of ponding before the water would overflow at 54.5 inches, which is 5.5 inches lower than the inflow starting point, and 2.5 inches lower than the inlet entrance to the garden.

Of course, if you change the topography at the overflow location by lowering it for aesthetics or extra precautions, you will need to recalculate from this new low point.

The key things to always remember:

- Where you set the overflow point is the maximum that your rain garden will pond; and
- Always be sure that the connection point/starting inflow is your high point so water can’t back up and create a drainage problem.