



Centipede™* and Snorkel™* Constructed Wetland Installation Instructions

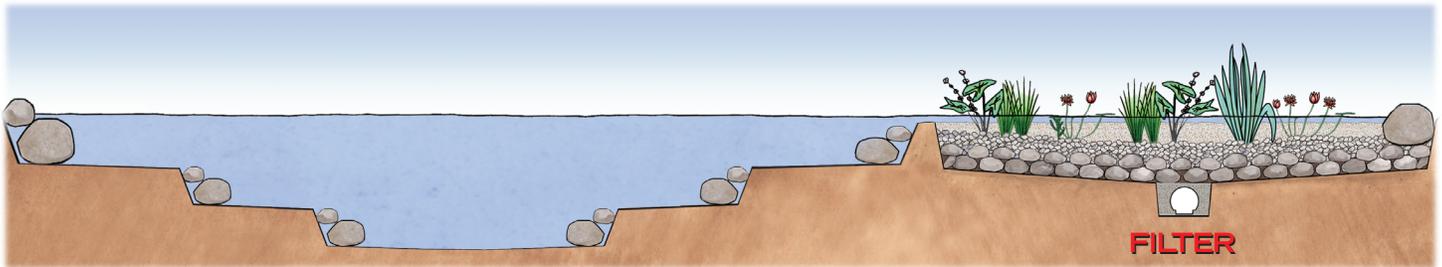
These are installation instructions only, please refer to Aquascape Designs' *Pond Builder's Bible* for more detailed information on the functions of a constructed wetland.

Choose the location for the filter:

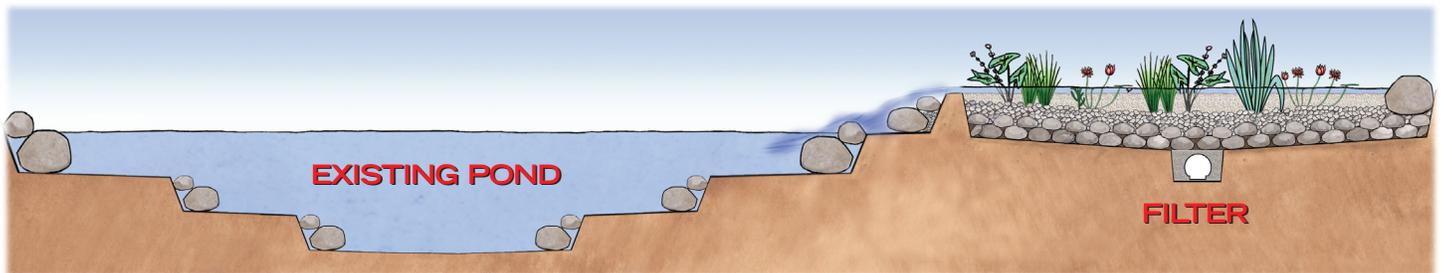
It can be set within the actual pond to be filtered, or it can be placed outside of the pond with a connecting stream for the water to return to the main pond.

If it's set within the main pond, there are two options to follow during excavation:

1. The filter is set at the same water level as the pond. This will give the appearance of a marshy area along the pond's perimeter.



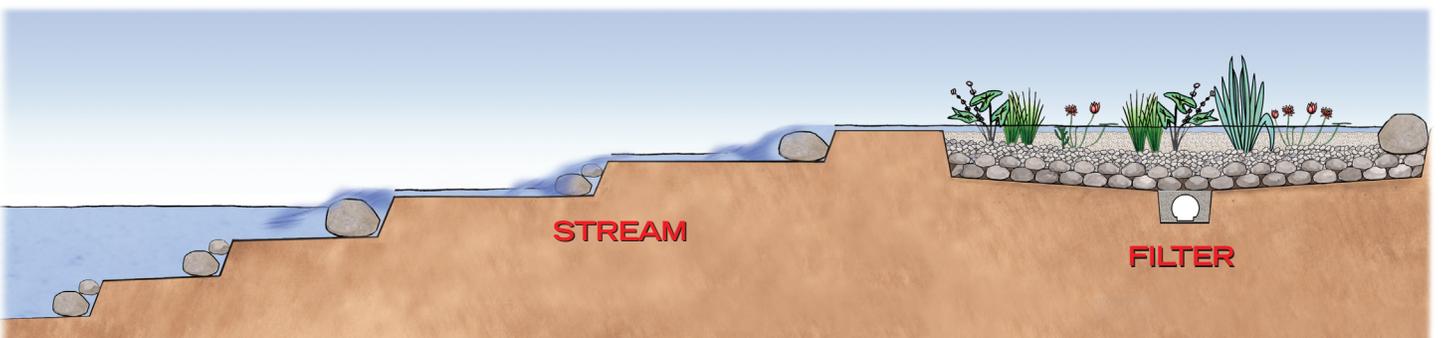
2. The filter is set above the main pond, but adjacent to it. This method works great if the filter is being installed on an existing pond or the design calls for a waterfall.



If the filter is set away from the main pond, a stream will need to be constructed to channel the water back to the main pond.

The actual filter construction will remain the same—the only difference will be in the way it flows back into the main pond.

See Stream Construction in Aquascape Designs' *Pond Builder's Bible*, the leading source of pond construction for contractors.



Bog System Size Requirements

*Liner sizes are assuming the filter is situated on the pond's edge with no stream. Increase liner size accordingly for stream additions.

Pond Size in Sq. Ft.	Actual Filter Size	Number of Centipedes™	Liner, Basic Configurations Minimum Sizes*	Pump Flow GPH	Skimmer
600	8' x 10'	1	15' x 20'	3,000	Standard
2,400	8' x 15'	2	15' x 25'	4,500	Standard
7,200	8' x 20'	3	15' x 30'	7,500	Large
10,000	8' x 25'	4	15' x 35'	10,000	Grande
20,000	8' x 50'	8	15' x 70'	20,000	Grande
40,000	25' x 50'	12	35' x 70'	30,000	2 - Grandes
80,000	50' x 50'	16	70' x 70'	40,000	2 - Grandes

After the location is determined, the filter size will need to be calculated. Our charts are based on surface areas of ponds, not gallons. This is due to large discrepancies with water volume calculations and depths of existing ponds.

O.K., the location is confirmed and the size has been determined—it's time to start the installation procedures:

1. Mark the filter size and shape on the area where it will be located.

2. Dig the entire area to a depth of 18". (Figure 4)

3. Slope the bottom of the excavated area 6" towards the middle. (Figure 5)

4. Dig a trough down the center approximately 18" wide and 14" deep. Dig a larger area at one end where the clean-out Snorkel™ is located. This area should be about two foot in diameter and approximately 4" deeper than the bottom of the trough. This will help during cleaning of the filter. (Figures 6A & 6B)

5. Connect the Centipedes™ together by sliding the female end over the male end. If multiple units are used, one of the ends of the Centipede™ will need to be cut off. This will become the male end. (Figure 7)

6. Place the Centipede™ and Snorkel™ into the trough to check for a proper fit. The entire unit should sit within the trough with several inches of room around the unit for stone placement.

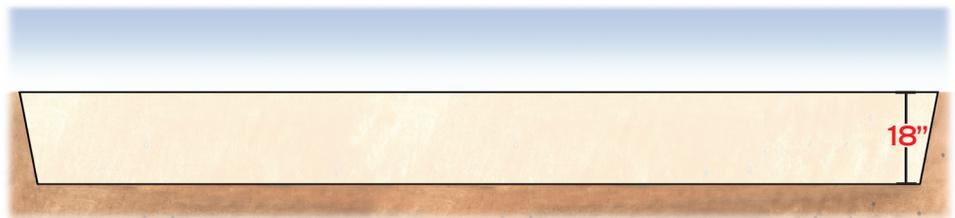


Figure 4

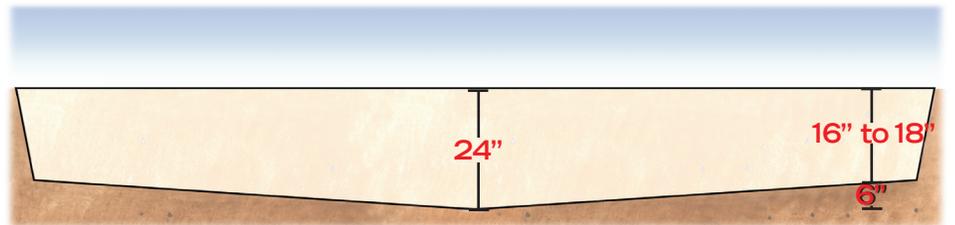


Figure 5

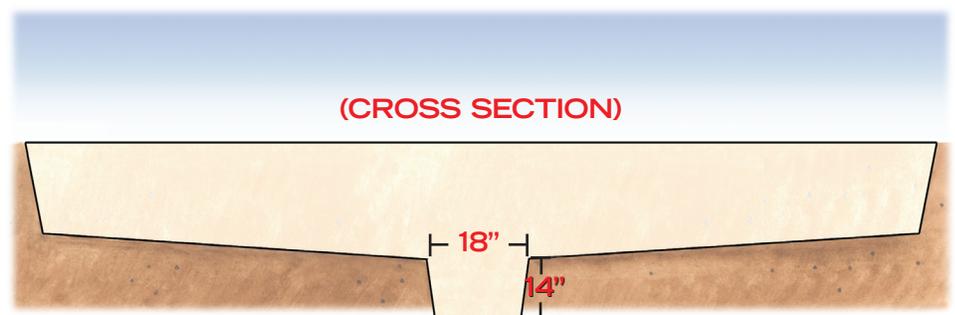


Figure 6A



Figure 6B

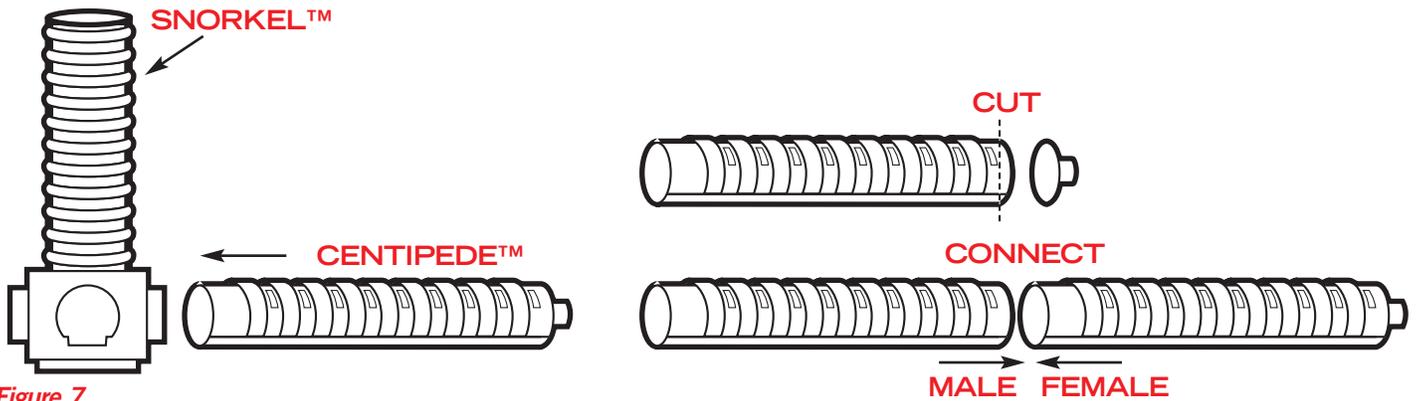


Figure 7

7. Remove the units from the excavation and install the underlayment and liner.

8. Place the filter units back into the trough. Using a layer of gravel or stones under the Centipede™ to adjust the pitch— it should be sloping slightly towards the clean-out Snorkel™. (Figure 8)

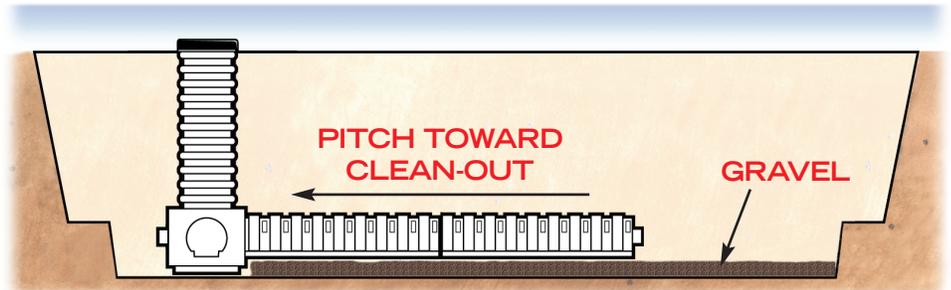


Figure 8

9. Connect the piping to the Centipede™ using the coupling provided. **The piping should go over the liner and several inches above the proposed water level within the filter.** Continue to lay the piping to the pump, trenching it if necessary. (Figure 9)

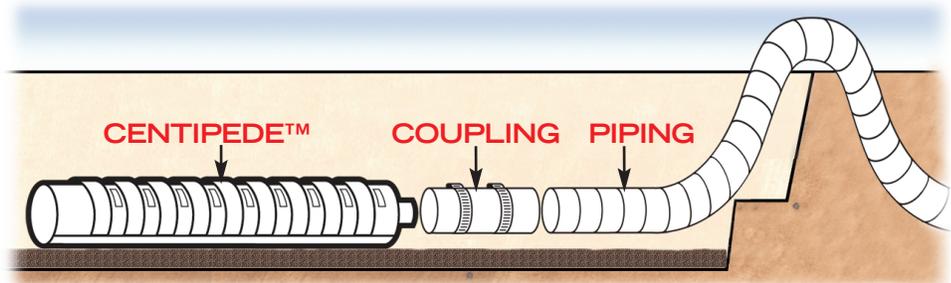


Figure 9

10. With the Centipede™, Snorkel™ and piping in place, cover it with 4" to 6" stones. The stones should be placed on the Centipede™ first and they should continue outward completely covering the bottom. Place the stones loosely on the bottom—there should be a 1" to 2" gap between the stones to allow unrestricted water flow out of the Centipede™. (Figure 10)

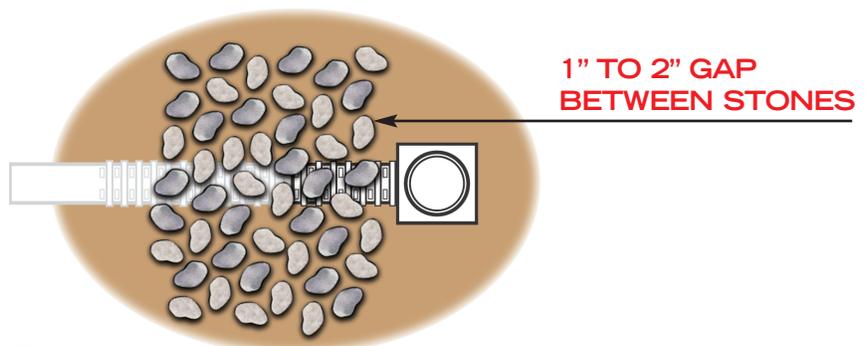


Figure 10

11. Place another layer of 4" to 6" stones on top of the joints of the bottom layer of stones. This will prevent the next layer of gravel from clogging up the spaces between the 4" to 6" stones. (Figure 11)

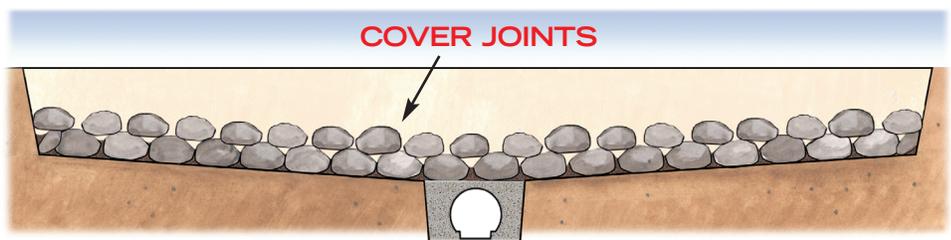


Figure 11

12. After all the joints are covered, pour a 4" to 6" layer of 1-1/2" to 2" gravel over the stones. Level the layer with a rake. (Figure 12)

13. Pour another layer of smaller gravel, 1/2" to 3/4" over the other layer. This layer should completely fill the filter up to the level of the overflow or the waterfall weir. (Figure 13)

14. Place a series of stones around the perimeter of the filter, to cover the liner that's above the normal operating water level. (Figure 14)

15. Finish the edges of the filter after it has been turned on, to insure enough liner is available to prevent leaks from occurring.

Our new modular filter design allows you to customize the filtration capacity as well as design. Here are a few possible configurations using four Centipedes™.

(Figure 15)

Do not connect more than four Centipedes™ in series.

(Figure 16)

Rock and gravel calculations for 10ft.² of filter.

- 750lbs. 4" to 6" River Gravel
- 900lbs. 1-1/2" to 2" River Gravel
- 900lbs. 1/2" to 3/4" River Gravel

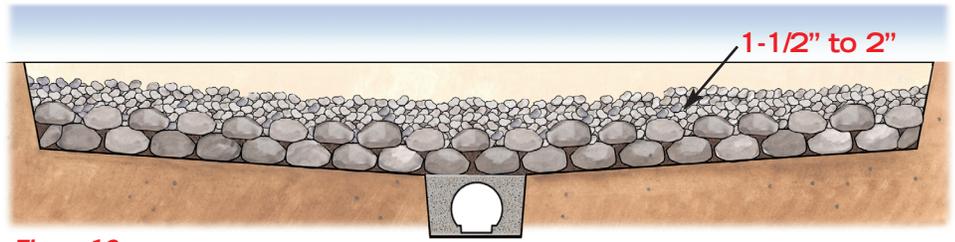


Figure 12

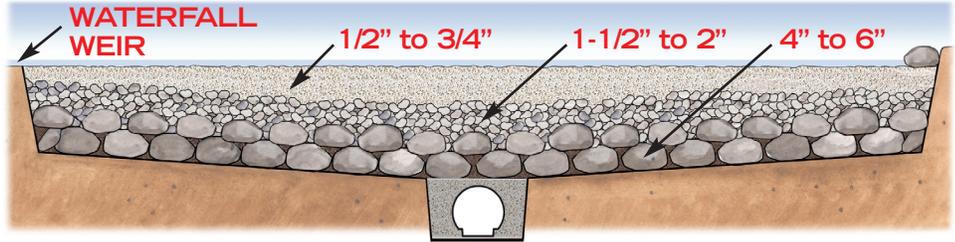


Figure 13

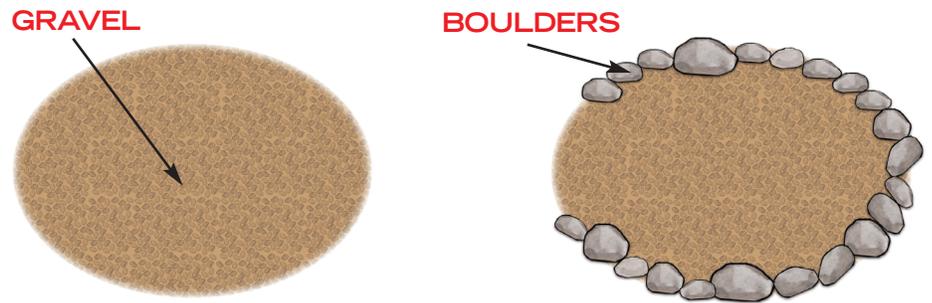


Figure 14

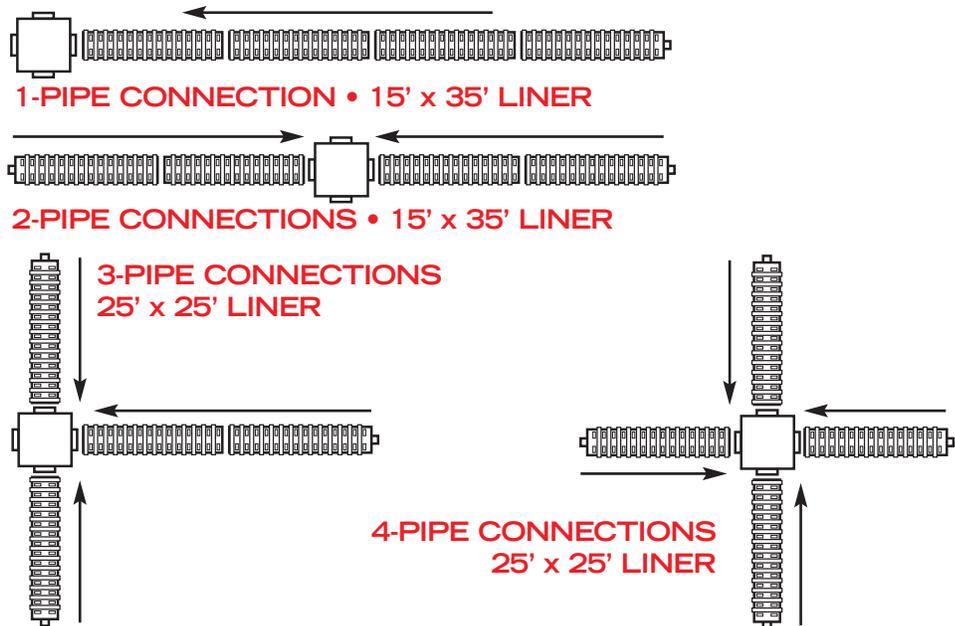


Figure 15

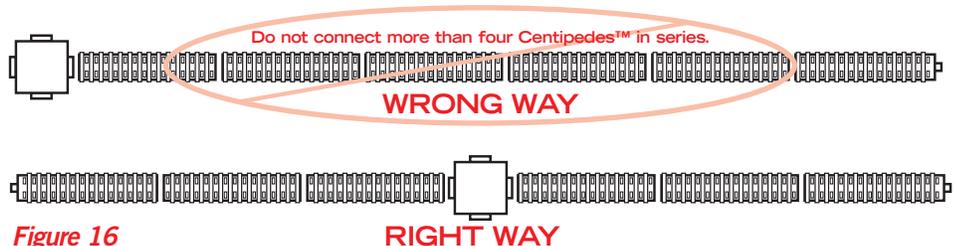


Figure 16

