

## STEP 17

### Mulch the Berm

- The entire area surrounding the pond can now be mulched and any surrounding plants added.



## STEP 18

### Clean Up

- You're at the final stages of the project! All that is needed now is to clean up the mess you've made around the yard.

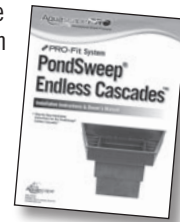


## STEP 19

### Owner's Manual and Bacteria

- Refer to the following pages in this instruction booklet for care and maintenance of your new water feature.
- The pond kits include water treatments designed to reduce maintenance and keep the water crystal clear. Contact your

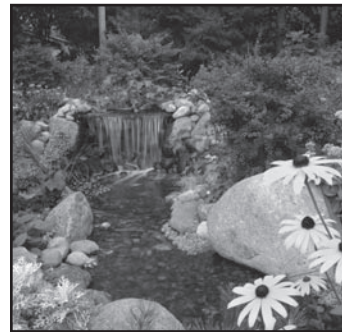
installer or supplier for more information on the complete water treatment line available from Aquascape.



## STEP 20

### ENJOY!

No further explanation needed for this step!



**Aquascape** PRO™  
Professional Grade Products

PRO-Fit™ System

# PondSweep® Endless Cascades™

## Installation Instructions & Owner's Manual

- Step-by-Step Installation Instructions for the PondSweep® Endless Cascades™



For more information on care and maintenance, please refer to Aquascape's *Ecosystem Pond* or *Pond Building for Hobbyists* books or visit [www.aquascapeinc.com](http://www.aquascapeinc.com)

**Aquascape**

Made in Italy for:  
Aquascape, Inc.  
St. Charles, IL 60174 • Brampton, ON L6T 5V7  
[www.aquascapeinc.com](http://www.aquascapeinc.com)

## STEP 11

### Hook up and level Your Endless Cascade™

- Using a hole saw, cut out the hole for the bulkhead fitting at one of the marked locations along the bottom side of the vault. (See fig.1)
- Install the bulkhead fitting in the hole cut in the side of the Endless Cascades™. The rubber washer should be located on the inside of the Endless Cascades™. Tighten the nut on the outside until the rubber washer begins to bulge. This should only be approximately one turn past hand tight. Be careful not to over tighten the nut, which could possibly crack the bulkhead. Please note that the bulkhead fitting is reverse threaded. So, in other words, turn the nut counterclockwise to tighten! (See figs. 2 & 3)
- Install the PVC slip fitting into the bulkhead to receive the pump plumbing. Use some of the silicone sealant or teflon tape (not included) to coat the threads of the fittings, in order to help provide a watertight seal.
- Now it's time to position the Endless Cascade™ in the desired location.
- The Endless Cascade™ should be set at or slightly below the grade of the yard. Simply remove a section of sod or a few inches of soil in order to create a firm foundation for the Endless Cascade™ to sit.

**Design Tip:** Keep the waterfall to the scale of the yard! The goal should be

to create the perception that Mother Nature herself has installed the waterfall. Avoid creating a "volcanic look" by trying to raise the Endless Cascade™ in a flat backyard.

- Be sure to compact the area beneath the Endless Cascade™ box using a hand tamper or some other heavy flat object that can be pounded onto the soil. This will help prevent any future settling.
- Use a 2' bubble level in order to make sure your Endless Cascade™ is properly set into position. Your Endless Cascade™ should be level from side to side and front to back. This will make sure the water comes out uniformly over the cut edges of the Endless Cascade™ and covers the entire spillway.

#### Attaching Flexible PVC Pipe:

- The filter is now ready for the flexible PVC to be glued into place using PVC cement specified for use with flexible piping.
- Prime the inside of the PVC fitting and the outside of the pipe where the flexible PVC cement will be applied.
- After priming, apply the cement to the fitting and the PVC pipe and fit the two pieces together.
- Hold the pipe into the fitting for at least 60 seconds to allow the glue to slightly set.

#### Endless Cascades™ Parts Diagram

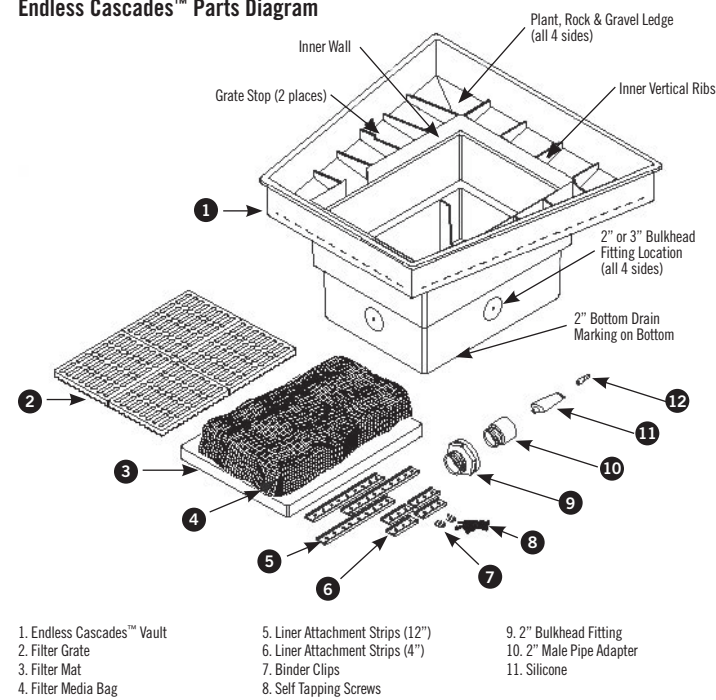


Fig. 1 Cut out the hole for the bulkhead fitting.



Fig. 2 Attach bulkhead fitting.

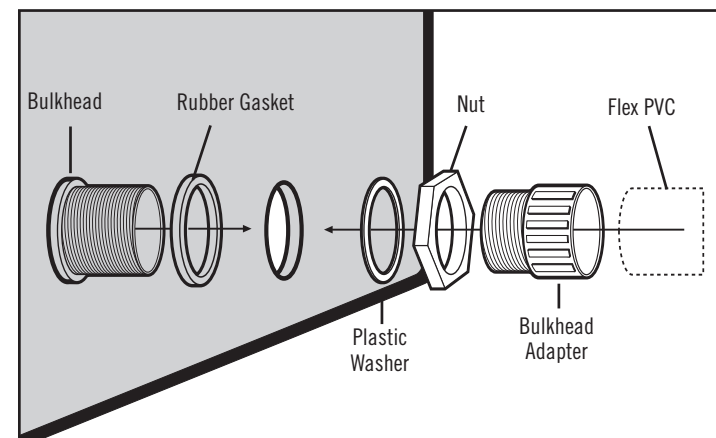
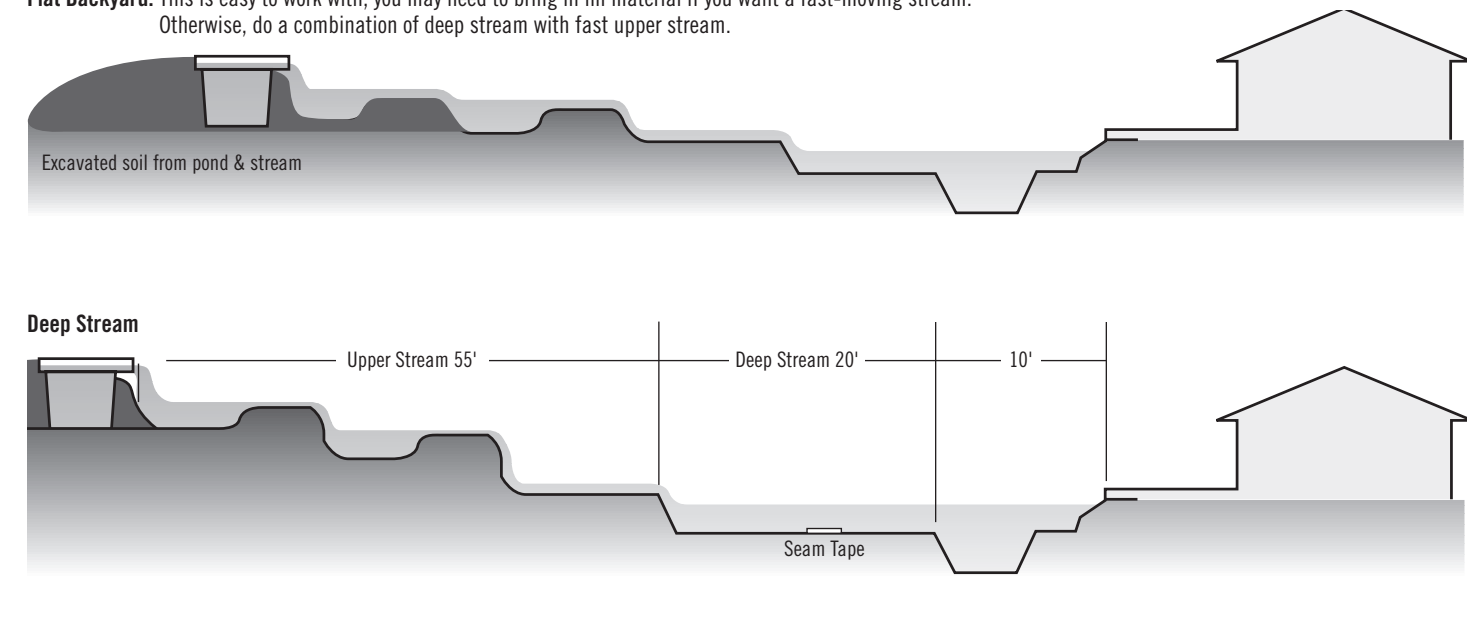


Fig. 3 Bulkhead assembly. NOTE: Do not use any silicone on the rubber gasket.

## Building the Stream cont ...

**Flat Backyard:** This is easy to work with; you may need to bring in fill material if you want a fast-moving stream. Otherwise, do a combination of deep stream with fast upper stream.



## STEP 13

### Bring in the Topsoil

- Add topsoil to the berm and surrounding area in order to provide a good substrate for future landscape plantings.
- The entire area may be mulched and any plant material installed if necessary.



## STEP 14

### Build the Retaining Wall

- Finish off the berm where the BIOFALLS® filter is buried by building a small retaining wall out of boulders. This step may or may not be needed, depending on the size of the berm and the transition into the existing landscape.



## STEP 15

### Plug in and Tweak the Waterfall

- As soon as the Pond/Pondless® Waterfall feature is filled and all of the black waterfall foam is dry (if used on project), you may plug the pump in and test the waterfall.
- You can "tweak" the waterfall by placing smaller stones and gravel on the waterfall cascades. This will change the appearance and

sound of the water. Have fun playing with the water coming over the falls until you achieve the desired effect.

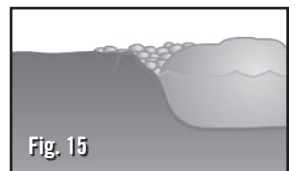


## STEP 16

### Trim the Liner

With everything running, go around the perimeter of the pond with a pair of scissors and trim off any excess liner (See fig. 14), always leaving several inches above the water level as a precaution. The remaining liner edges can be covered with gravel. (See fig. 15)

**Note:** Do not trim the liner until the waterfall is running and the pond is filled to the desired level. Prematurely trimming the liner may cause leaks!



## Building the Stream cont ...

- Placing the BIOFALLS® filter away from the edge of the pond is always a good idea. This allows the creation of a meandering stream to add a touch of nature to your water garden.
- We typically place the BIOFALLS® filter 6 - 10 feet from the edge of the pond. Twisting and turning the stream makes it look more natural, and will require a minimum 10' x 15' piece of liner.

### Excavation of the Stream

- Lay out the stream from the BIOFALLS® filter to the pond. The typical width of a stream should be between 2 - 4 feet wide (**Note: the wider the stream, the less movement of water you will have**). Vary the width of the stream

throughout to mimic what would occur in nature.

- Excavate the stream to a depth of 6 inches to 1 foot. Vary the depth in the corners and in smaller pools along the run of the stream to allow water to pool in those areas.
- If your stream is being built on a slope, you will need to create a few waterfalls in it. To hold the water back when the pump is shut off, you need to build a check dam at each waterfall.
- To make the stream look much more natural, you should place some larger boulders into it. To make this work properly, excavate the area where the rock will be placed a few inches deeper. This

will allow the rock to sit into the bottom of the stream, not just on the streambed.

- Once you have the stream excavated, you can place the liner into it.

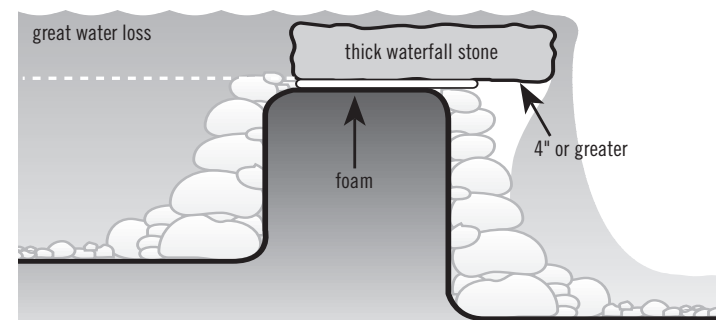
### Installation of Liner and Rocks

- Connect the liner to the BIOFALLS® filter as described above.
- Where the liner overlaps the pond, you will not need to seam the liners together as long as you have a 6-inch waterfall or higher. Simply overlap the stream liner over the top of the pond liner.
- Place rocks of varying sizes around the perimeter of the stream. During excavation of

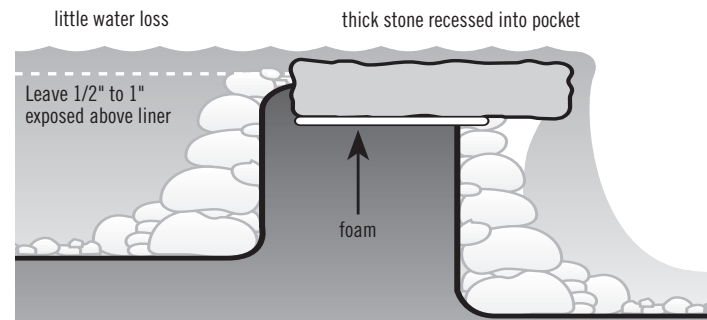
the stream, you dug a few areas where larger rocks will go. Put some of the Black Waterfall Foam into these divots and place the rocks on top. The foam will allow the water to be diverted around and over the rocks instead of underneath them.

### Deep Streams

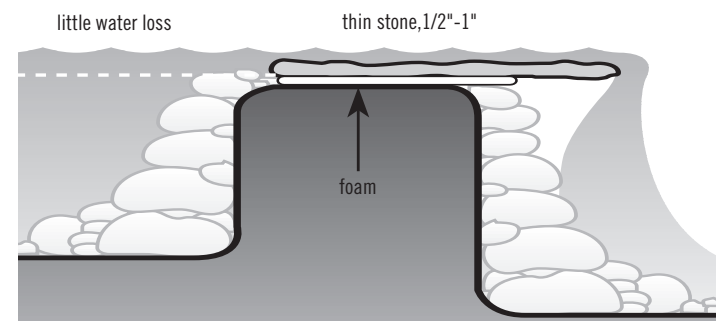
- A deep stream is simply an extension of the pond itself. By adding a deep stream to a pond, you allow the fish from the pond to swim to other areas that would otherwise not be possible. One important construction technique you will need to master, is a double-seam.



An often overlooked part of stream construction is the thickness of your waterfall stone. Water will eventually seep through the foam joints if the pumps are off for prolonged periods of time. The water will slowly seep around the thick stone, resulting in water loss equal to the thickness of the stone.

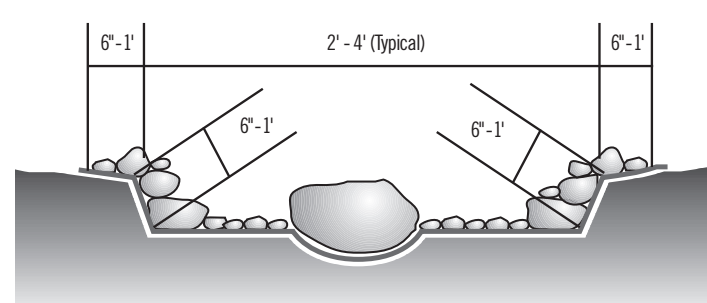


If your only option is a thick waterfall stone, use the above method.



By using a thin stone, the situation can be easily remedied.

### Stream Bed Cross Section



## Hook Up and Level Your Endless Cascade™ cont ...

- Wait 10 - 15 minutes to let the glue completely set before you begin to bury the filter.
- Before you start to back fill around the filter, install the support grate. Otherwise, you may not be able to get it in place.
- We also recommend having someone stand inside the filter to keep it in place and level while it's being back filled.
- The excavated soil from the pond can be back filled around the sides and back of the Endless Cascade™ filter, creating a berm. Tamp the soil while back filling in order to reduce settling. Any additional soil can be spread around the far side of the pond in order to create a planting bed for perennials and annuals.
- Double check to make sure the Endless Cascade™ is still level after installing the plumbing.

### Connecting Multiple Endless Cascades™ Vaults Together

A unique feature of the Endless Cascades™ is that it allows the installer to connect multiple vaults together. (See fig.4) By connecting multiple units together, you can create any style of waterfall you can think of. You can create a really wide waterfall, a curved waterfall, or even a circular waterfall. With a little bit of modification you too can create these falls.

- Set the vaults that are to be connected, side by side. (See fig.5) Cut off the top horizontal lip along the section where the two vaults overlap. Follow the solid line inscribed into the top lip of each vault. These steps are only required if you want water flowing directly between 2 or more attached vaults.
- Place the vaults on a flat level surface. Make sure the vaults are level in both directions to prevent any spillage over the top of a low vault. Attach the vaults temporarily, with a couple of bolts. Cut out the top wall section to let water flow between the vaults or over a wide waterfall stone. Make the cut

as wide as possible. Stay above the horizontal line defined by the top of the vertical ribs, so that there is enough room for bolts and silicone on all sides. (See Fig.6) While the vaults are still attached, finish drilling the bolt holes.

- Drill the holes approximately 1" apart through both vaults along the sides and bottom of the cut area. Apply a 1/4" diameter thick layer of silicone along the sides and bottom of the cut area. (See fig.7) Be sure to include the drilled holes within the silicone area.

- Bolt the vaults together using stainless steel bolts, nuts and washers (purchased separately). (See fig.8) A section of the inner vertical wall may need to be removed for easier access for a screwdriver.
- For additional protection against leakage, apply a thick layer of silicone along the seam where the vaults meet. (See fig.9)

- Connect the incoming water supply pipes to the vaults as described on page 2. (See fig.10) One connection will overflow into multiple vaults, but for increased filtration and more manageable flow rates, install the water supply pipes into each vault at the bottom and use ball valves to control the flow.

- Install the waterfall stones at the same level for good flow out of each unit. Failure to do so could result in uneven water flow from one of the vaults. In order to make sure the waterfall stones are the same height a transit or level should be used. (See fig.11)

### Creating the Waterfall

- Decide where and how wide the waterfall stone will be and then cut the vault to match. (See fig.12) A simple waterfall can be cut anywhere on any side of the vault. Just trace the width and determine how low you want to set the stone. Leave room on the vault face for the vertical liner attachment strips on each end.

- More than one side of the vault

Fig. 4 Multiple vault configurations.

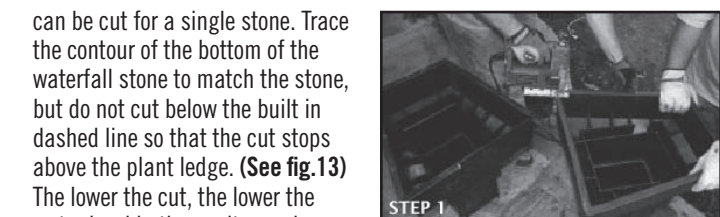
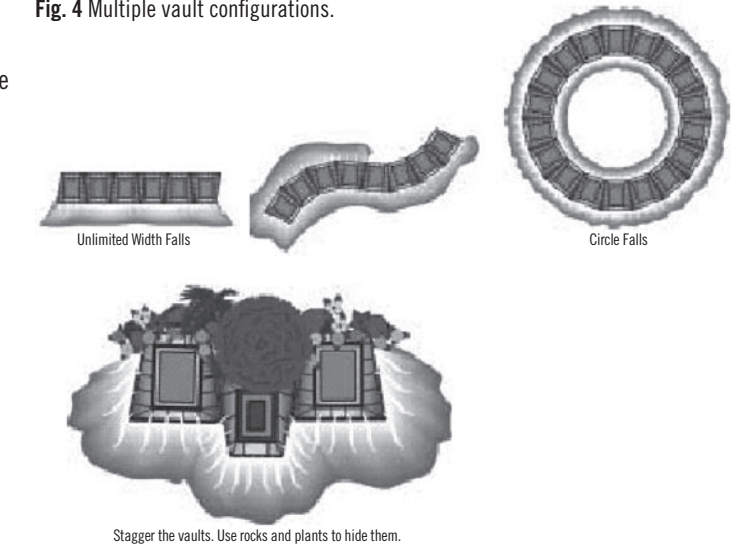


Fig. 5 Set vaults side by side.

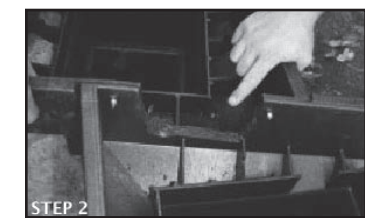


Fig. 6 Cut out top wall section.



Fig. 7 Apply a thick bead of silicone.



Fig. 8 Bolt vaults together using stainless steel bolts, nuts and washers.

## Creating the Waterfall cont ...

the possibility of stripping the screws. **Be sure the vertical liner attachment strip is attached far enough away to contain any water falling off the sides of the waterfall stone.**

- Use the long liner attachment strips and self-tapping screws to attach the liner under the waterfall stone cutout. (See fig.16)
- Trim the liner above and immediately adjacent to the liner attachment strips, then apply additional silicone along the cut edge of the liner, to create a second seal. (See fig.17 & 18) Let

silicone dry at least 1-hour before introducing water!

- Apply the black waterfall foam under the waterfall stone. (See fig.19) Fill the plant pockets around the top edge of the vault with gravel and add plants. You may need to periodically trim these plants so they don't slow the flow of water over the waterfall.
- Place two larger boulders on either side of the waterfalls you are creating in order to "frame" the waterfalls. The water will be running between the two larger

boulders you've set in place. (See fig. 20)

- You can now begin to stack the rocks between the two larger boulders. These are the rocks that the water will be running over, so take your time and be creative. Start with the larger rocks on the bottom and work your way up to the smaller ones on top.
- Small stones and gravel can be used to fill in the gaps between the larger waterfall stones.
- To make the water cascade off the filter you can use piece(s) of thin (no more than 3/4" thick)

natural slate (See figs. 21 & 22). This stone can be attached to the Endless Cascade™ using black waterfall foam. The black waterfall foam will come in handy when filling other gaps between the stones that water is flowing over. The foam keeps the water flowing over the top of the waterfall stones. Without the black waterfall foam, you may lose some of the impact of your waterfall as water travels beneath the rocks.

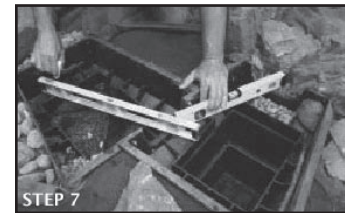
- Place smaller rocks on the rock ledge inside the Endless Cascade™ to help hide it in the landscape. (See fig. 23)



STEP 5  
Fig. 9 Apply silicon to vault seams.



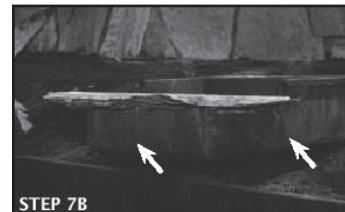
STEP 6  
Fig. 10 Connect incoming water supply.



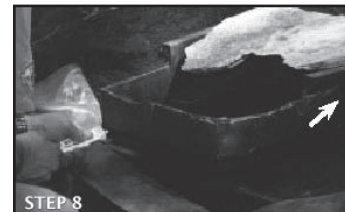
STEP 7  
Fig. 11 Install waterfall stones at the same level.



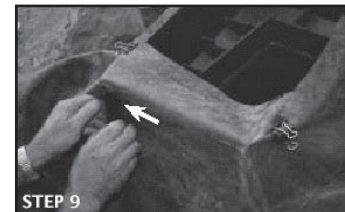
STEP 7A  
Fig. 12 Decide where and how wide the waterfall stone will be and cut the vault to match.



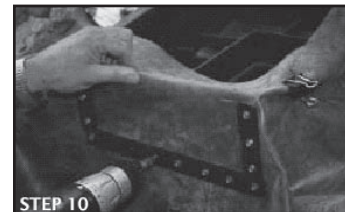
STEP 7B  
Fig. 13 Do not cut below the built in dashed line so the cut stops above the plant edge.



STEP 8  
Fig. 14 Apply a thick bead of silicone 1" away from the bottom and sides of the cut out section.



STEP 9  
Fig. 15 Use the supplied binder clips to temporarily hold the liner to the vault.



STEP 10  
Fig. 16 Use the long liner strips and self-tapping screws to attach the liner under the waterfall stone cutout.



STEP 11  
Fig. 17 Trim the liner above and immediately adjacent to the liner attachment strips.



STEP 12  
Fig. 18 Apply additional silicone along the cut edge of the liner to create a second seal.



STEP 12  
Fig. 19 Apply black waterfall foam under the waterfall stone.

## Creating the Waterfall cont ...

### Creating the Waterfall

- Place two larger boulders on either side of the waterfall you are creating in order to "frame" the waterfalls. The water will be running between the two larger boulders you've set in place. (See fig. 20)
- You can now begin to stack the rocks between the two larger boulders. These are the rocks that the water will be running over, so take your time and be creative. Start with the larger rocks on the bottom and work your way up to the smaller ones on top.
- Small stones and gravel can be used to fill the gaps between the larger waterfall stones.
- The Endless Cascade™ vault is designed with a plastic lip for the water to cascade off. You can use the Endless Cascade™ vault plastic

waterfall stone or even piece(s) of thin (no more than 3/4" thick) natural slate (See figs. 21 & 22). This stone can be attached to the Endless Cascade™ vault using black waterfall foam. The black waterfall foam will come in handy when filling other gaps between the stones that water is flowing over. The foam keeps the water flowing over the top of the waterfall stones. Without the black waterfall foam, you may lose some of the impact of your waterfall as water travels beneath the rocks.

- Place smaller rocks on the rock ledge inside the Endless Cascade™ vault to help hide it in the landscape. The rock tray inside the Endless Cascade™ vault will help disguise the rest of the unit into the landscape. (See fig. 23)

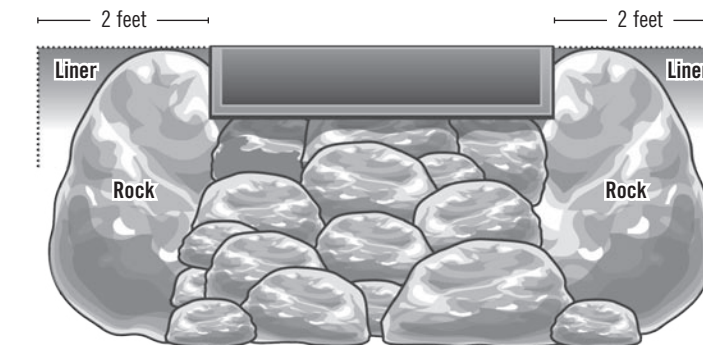


Fig. 20 Place two larger boulders on either side of the waterfalls you are creating in order to "frame" the waterfalls.

### Waterfall Lights

- After the boulders are in position, set your waterfall accent lights. The lights can be placed beneath the waterfall shining upwards.

- See lighting system instructions for placement, positioning and installation of waterfall lights.

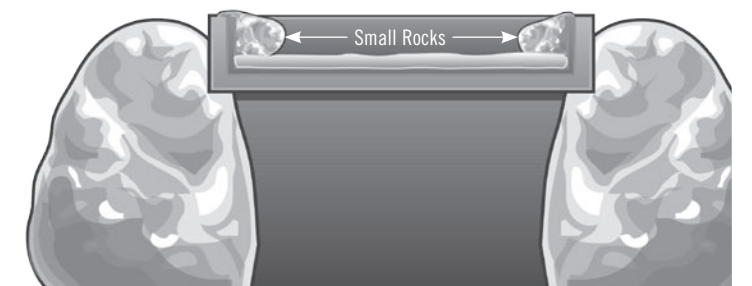
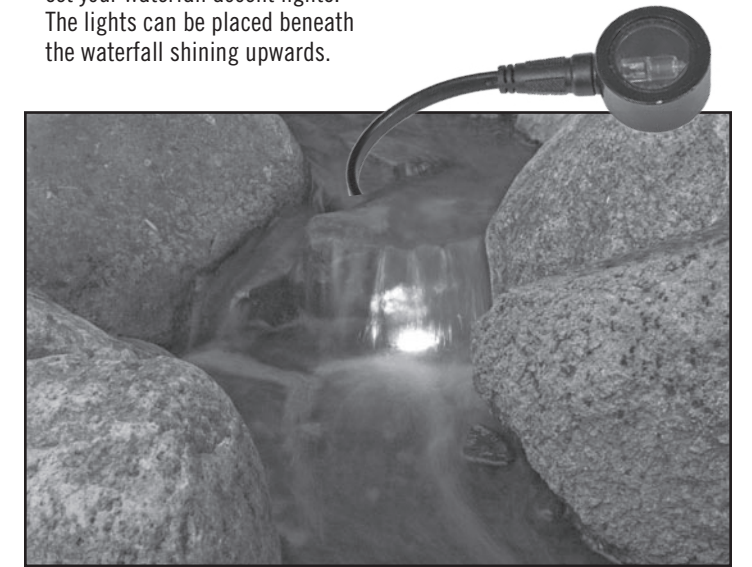


Fig. 23 Place smaller rocks on the rock ledge in the BIOFALLS® filter.

## STEP 12

### Build the Stream

Before building the waterfall, you will need to do a little preparation work. Please read the section about Stream Construction on page 14 if you plan to create a stream. We also recommend that contractors refer to *The Pond Builders Bible* and the *Waterfalls & Stream Construction* video prior to designing and installing. Do-It Yourselfers can refer to the book *Ecosystem Pond* or *Pond Building for Hobbyists* for more information on Stream and Water-

- falls construction.
- Placing the Endless Cascade™ away from the edge of the pond is always a good idea. This allows the creation of a meandering stream to add a touch of nature to your water garden.
- We typically place the Endless Cascade™ 6 - 10 feet from the edge of the pond. Twisting and turning the stream makes it look more natural, and will require a

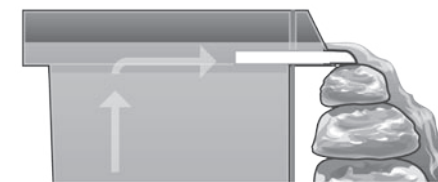


Fig. 21 If using a natural rock for your waterfall weir, make sure that it is fairly thin (no more than 3/4").



Fig. 22 If a thick rock along with a larger flow pump is used, the water flow may be so great that it will flow over the sides of the Endless Cascade™ vault.