Small Backyard Pondless Waterfall

Calculate your exact pump, liner, and gravel needs for a beautiful cascade.

Build a stunning, low-maintenance waterfall that disappears instantly into a bed of cobbles. This continuous drainage entirely eliminates algae blooms and keeps the feature safe for everyone.



Key Measurements

150 GPH
Per spillway lip inch baseline

2.5x
Active flow for buried gravel basin

2-4 in
River cobble diameter for landing

6 in
Minimum underlayment seam overlap

Drop + 4 ft
Liner length (width is +4ft)

1 rock
Volume knob for splash acoustics

Foam behind the rocks

Apply specialized black waterfall foam behind your spillway stones to force water over the front lip. Cover exposed foam with stone dust to prevent UV crumbling.

Building Your Waterfall

1. **Excavate terraced shelves** Dig the path with slight terraced steps to provide a stable foundation for heavy boulders.
2. **Protect the liner** Smooth the sand, lay geotextile, then unroll the rubber liner completely flat to prevent dangerous air pockets.
3. **Conceal the equipment** Place the pump vault in the basin before backfilling with gravel to protect the motor from crushing.
4. **Stack framing rocks** Place the largest boulders on outside edges and slightly recess flat spillway stones to channel water centrally.
5. **Hide exposed edges** Fold excess rubber vertically behind marginal rocks and cover completely with natural mulch or gravel.

Pump & Liner Sizing Sheet

Find your row: **Spillway width**

Spillway width	Your pick	Why
10-inch front spillway lip	1,500 GPH pump baseline	12-inch depth, 3 cubic ft gravel
16-inch front spillway lip	2,400 GPH pump baseline	16-inch depth, 5 cubic ft gravel
24-inch front spillway lip	3,600 GPH pump baseline	20-inch depth, 8 cubic ft gravel
32-inch front spillway lip	4,800 GPH pump baseline	24-inch depth, 12 cubic ft gravel

Site & Safety Checks

- ○ Confirm the distance to a GFCI outlet for safe pump power.
- ○ Measure the total slope drop to calculate your vertical head height.
- ○ Mark all underground utility lines before digging the hidden basin.
- ○ Check the pump manufacturer's head-height performance curve for your landscape elevation.

Materials & Shopping List

- ☐ Slotted pump vault, stone lid for invisible access
- ☐ Heavy-duty non-woven geotextile fabric
- ☐ 45-mil EPDM rubber pond liner
- ☐ Smooth sand for leveling the bottom
- ☐ Flexible PVC tubing for shallow trench routing
- ☐ Fish-safe black waterfall foam
- ☐ Submersible warm-white LED spotlights
- ☐ Moisture-loving marginal plants like creeping Jenny

Project Notes & Sketches

Enjoy the relaxing babble of your crystal-clear, perfectly proportioned backyard waterfall!