



GLOBAL ENVIRONMENTAL'S GUIDE TO

Sand Filtration for Construction Dewatering

A practical guide to choosing, operating,
and optimizing sand filters on the jobsite.

Global Environmental
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Why sand filtration matters.

On construction sites, groundwater management isn't always part of the plan, but it often becomes part of the problem. As excavation begins, water seeps in, mixes with the disturbed soil, and suddenly your team is faced with managing muddy, sediment-laden runoff that can't be legally discharged without filtration.

Sand filtration is one of the simplest, most cost-effective ways to manage this issue. It removes suspended solids from groundwater and helps contractors stay compliant with discharge permits, without expensive or overly complex systems.

Global Environmental has supported contractors across Michigan for decades with dependable sand filter setups that function effectively in real-world conditions. We've seen

what works, what fails, and where smart planning saves time, money, and headaches.

Work with Global Environmental

With over 30 years of experience in environmental consulting and field operations, Global Environmental is a trusted partner for construction, industrial, and remediation projects across Michigan. We provide end-to-end support for water treatment systems, including sand filtration, covering design, permitting, mobilization, operation, and decommissioning.

Our State Certified Operators and HAZWOPER-trained field teams work hands-on with both fixed and mobile

systems. Whether you're managing suspended solids, unexpected groundwater conditions, or a complex discharge permit, we bring proven field experience and responsive service to every jobsite.

What You Can Expect:

- Tailored system design based on site-specific needs
- Rapid mobilization and delivery of treatment equipment
- Full-service installation, operation, and media management
- Sampling, compliance support, and discharge documentation
- Strategic guidance from permitting through project closeout



Holly, Michigan:

10312 North Holly Road, Holly, MI 48442
Phone: (810) 238-9190

Traverse City, Michigan:

1015 Noteware Drive, Traverse City, MI 49686
Phone: (231) 264-3000

Visit our website at global-env.com to learn more or schedule a consultation.



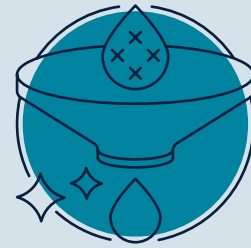
What is sand filtration?

Sand filtration is a mechanical treatment method that physically removes particles from water by passing it through a bed of sand. It's often used as the first line of defense in a treatment process, particularly on sites where solids must be removed before water is discharged.

Key capabilities:

- Removes particles down to 20 microns
- Can be used as a standalone solution or paired with:
 - Coagulants/flocculants
 - Activated carbon
 - Ion exchange resin
 - Zeolite media

When properly sized and maintained, sand filters help ensure that groundwater discharge stays within Total Suspended Solids (TSS) limits set by regulators.



COMMON USE CASES

Sand filters are commonly deployed in the following scenarios:



Construction site dewatering

(basements, foundations, underground utilities)

Stormwater sediment removal

Groundwater pretreatment
before GAC or resin filtration

Emergency filtration
after rainfall or site flooding

They're especially valuable on fast-moving projects, where last-minute permitting or discharge needs arise.





HOW TO CHOOSE THE RIGHT SAND FILTER

Choosing the right filter requires understanding the conditions on your site, not just grabbing a skid and hoping for the best.

Considerations when selecting a sand filter:

Flow Rate:

How much water will need to be processed per hour?
Undersized units will clog, stall, and frustrate your crew.

Solids Concentration:

Heavily sedimented water requires more surface area or multiple filter beds in series.

Particle Size:

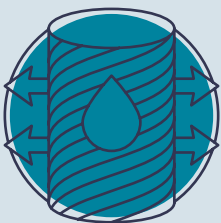
Finer particles (like silts and clays) may require pretreatment or additional filtration layers.

Water Chemistry:

Sand filters only handle suspended solids. If lab tests reveal the presence of metals, oils, or PFAS, you'll need to add additional treatment steps.

Good to know:

Global offers custom-built systems that combine sand filtration with other media, such as GAC, zeolite, or ion exchange resin.



OPERATING & MAINTAINING YOUR FILTER

Like any system on the jobsite, sand filters need attention to run smoothly. Failing to maintain equipment can lead to clogs, delays, or noncompliance.

Global's team can train your crew or manage the system entirely. We offer flexible support depending on your needs.

Routine Maintenance Checklist:

- ☐ **Inspect media for signs of clogging or channeling**
- ☐ **Monitor influent and effluent turbidity**
- ☐ **Backwash or replace media as needed**
- ☐ **Keep the flow consistent, as sudden surges can stir up sediment**
- ☐ **Clean or replace any geotextile support filters if present**



TROUBLESHOOTING COMMON ISSUES

When things go wrong, it's usually one of a few repeat offenders. Here's a quick reference chart:

ISSUE	LIKELY CAUSE	SOLUTION
Sluggish flow or backup	Clogged media	Backflush or replace filter media
Cloudy discharge	Overloaded filter or fine particulates	Add coagulant or additional filtration
Overflow from vessel	Improper flow rate or system undersized	Recalculate flow needs; add parallel unit
Fines in filtered water	Support layer failure or media migration	Inspect geotextile filters and replace as needed

Sustainability Considerations

Sand filtration helps contractors meet discharge requirements while supporting responsible water practices on active job sites. By removing sediment from groundwater before discharge, you reduce environmental impact and help protect nearby storm drains, surface waters, and ecosystems.

Global Environmental offers select sand filters equipped with integrated solar power, enabling automated backwash cycles on remote sites without the need for external power. For other systems, off-the-shelf solar generators can be deployed to power key components where utility connections are limited.

In addition to sand filtration, Global provides recycled and reactivated media options—such as GAC and blended treatments—supporting lower-impact construction without sacrificing performance.

