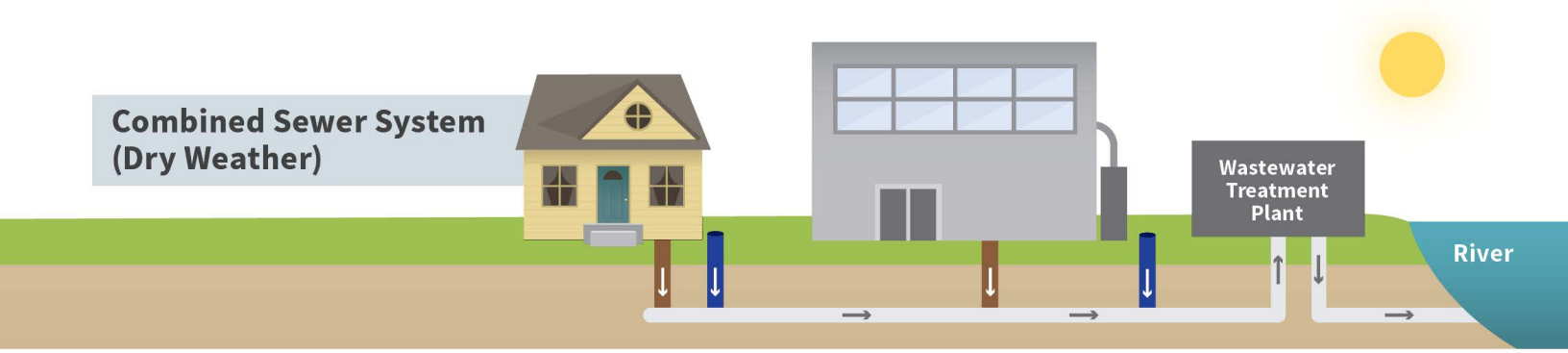
What You Need to Know about Combined Sewer Overflows and Retention Treatment Basins

A common misconception is that water discharged during an overflow from a retention treatment basin is untreated. In a combined sewer system, snowmelt, rainwater runoff, and wastewater (sewage) from inside houses and buildings are all combined in one pipe. When the pipes become full, excess combined sewage can be released at points throughout the system. These are termed combined sewer overflows (CSO), which are untreated. Since CSO releases are a threat to public health, many systems have added Retention Treatment Basins (RTBs), which collect and treat this wastewater to avoid untreated overflows. Overall most releases in the State of Michigan from combined sewers are treated via screening, skimming, settling and disinfection in Retention Treatment Basins (RTBs) prior to release into a water body. During smaller storms where there is no discharge, combined sewage is stored and sent to the Wastewater Treatment plant. When an overflow of the RTB occurs during a large rain event, the pollutants in the water discharged to a water body have already been largely reduced, resulting in protection of public health and allowing the water to be used for fishing, swimming, and other recreational activities.

Separated Sewer Systems

Separated sewer systems collect the rainwater separately from the wastewater, letting the rainwater go directly to the nearest river, lake or stream via storm sewers while the wastewater (sewage) is sent to the treatment plant by a sanitary sewer. There is no RTB in a separated sewer.

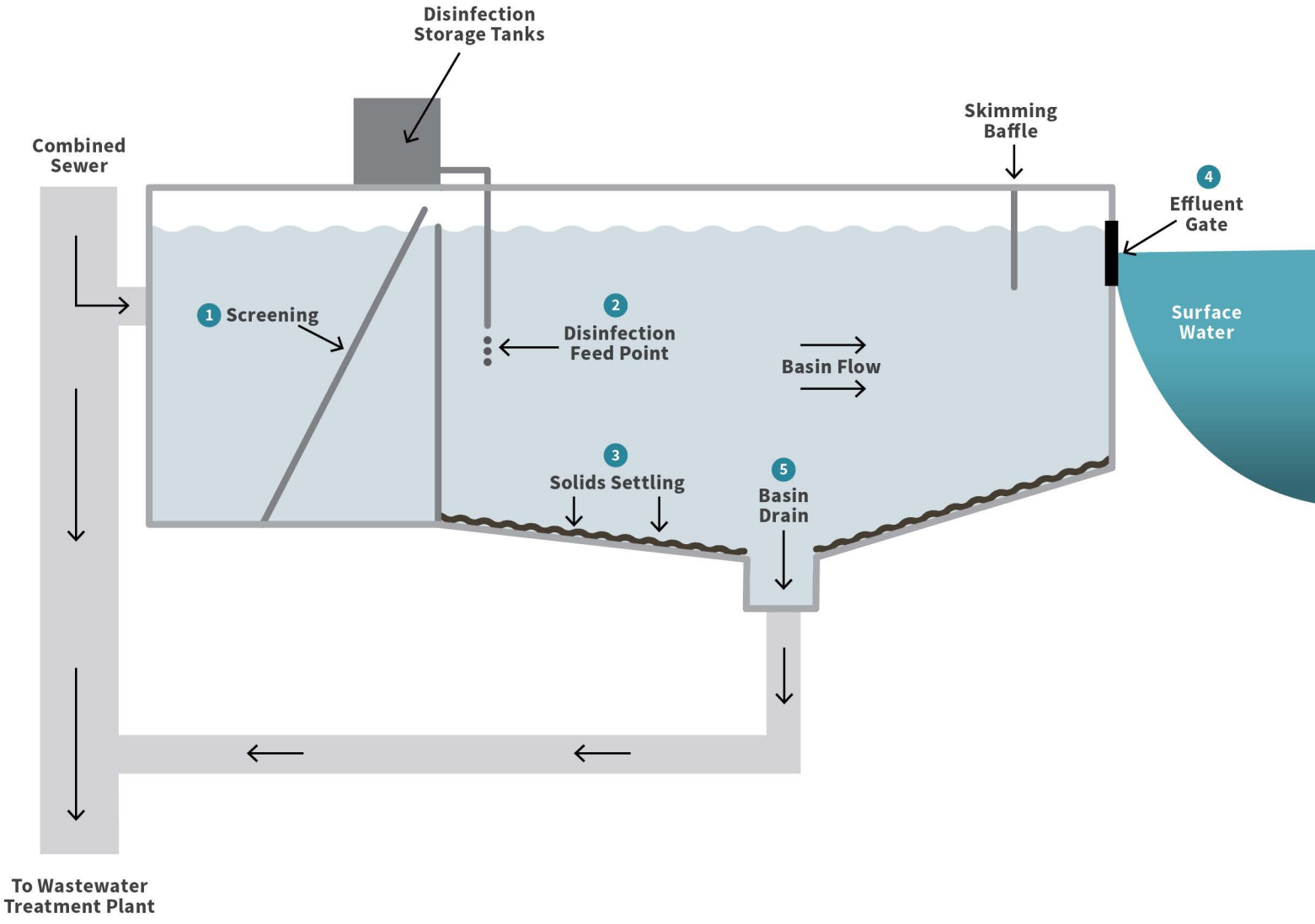
The following illustrations show where rainwater and sewage go in a combined sewer system before it is received and further treated by the wastewater treatment plant.



Retention Treatment Basins (RTBs)

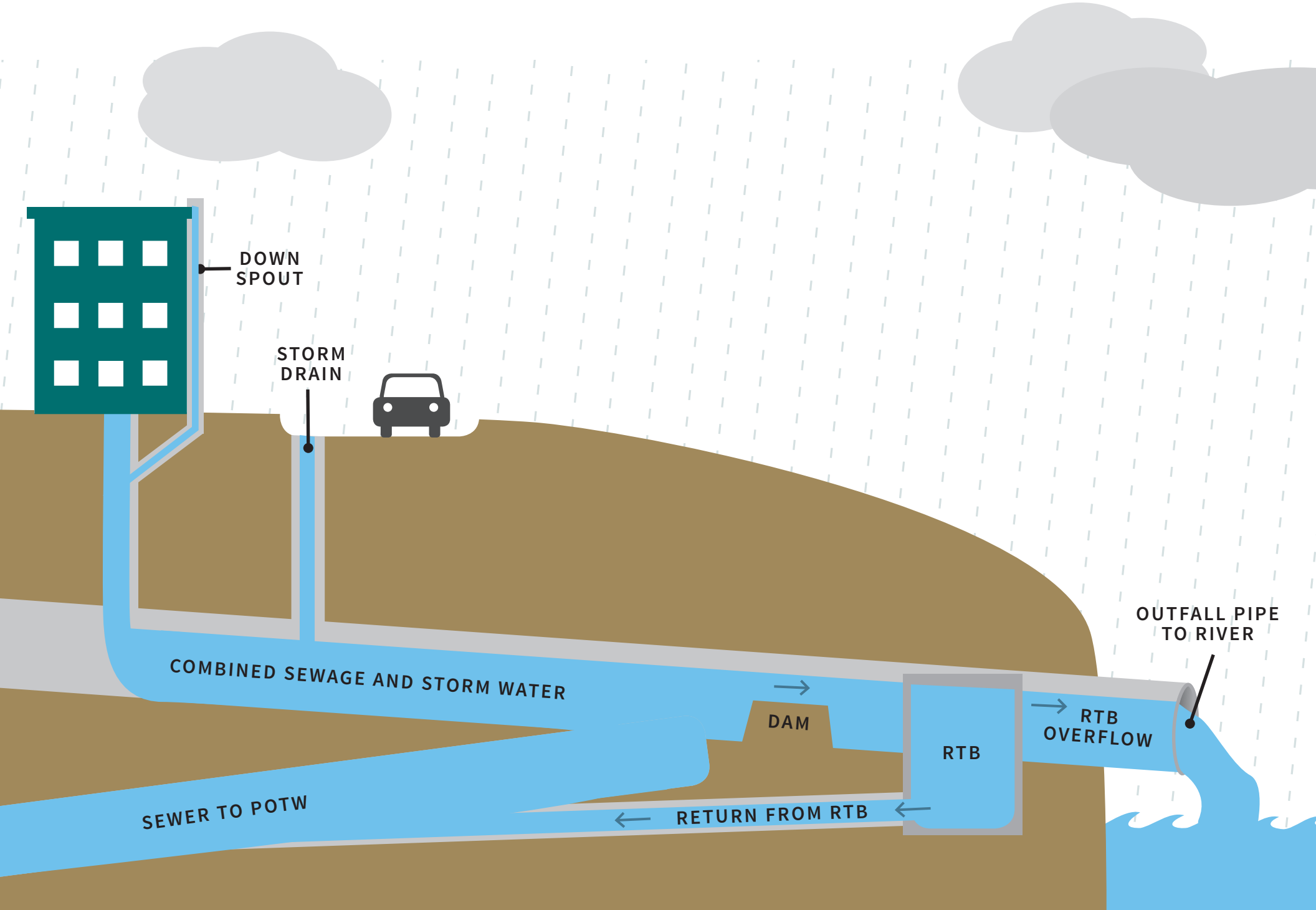
During a large rain event, excess combined sewage gets sent to the RTB once the sewers become full. The combined sewage flows through screens that filter out debris such as sanitary trash (1). A disinfectant is then applied to allow adequate time to kill disease causing organisms (2). In the basin, solids settle out and the skimming baffle prevents the discharge of floatable material and oils (3). Once the capacity of the RTB is exceeded, the treated overflow is sent to surface water resulting in a discharge that is protective of public health and the environment (4).

When the rain event ends and there is capacity available in the sewer, the contents of the RTB are drained back to the sewer to be sent to the wastewater treatment plant (5). RTB's are also equipped with flushing systems, which flush any remaining solids left in the RTB to the wastewater treatment plant, so the RTB is ready for the next rain event.



To learn more about Combined Sewer Overflows, see the annual report published by the Michigan Department of Environmental Quality, at *www.michigan.gov/sewagedischarge*, or call the Environmental Assistance Center at 800-662-9278 and ask for a wastewater engineer in an office near you.

Combined Sewer Overflow: Wet Weather



Combined Sewer Overflow: Dry Weather