

# Factors in Locating the SCM

The location of your water feature is important for determining both its shape and type. Your site inventory will be key for determining ideal locations. Strong considerations must be given to the topography and drainage of your property, the location of your downspouts, and any ponding that occurs. You must also be aware of constraints such as utilities, soil type and water table depth.

## Topography and Drainage

- The SCM should be located at a low lying area of your property. This allows it to intercept the majority of the water runoff that flows through the property.
- The SCM should be along a slope to allow for a natural flow of water.
- The SCM must be downhill from all building foundations.

## Downspouts

- The important question to consider with your downspouts is, can they drain to the water feature? If so, the water feature needs to be placed downhill from the downspouts. If not, a cistern or rain barrel can be used to collect the water.

## Ponding

- Ponding can be a serious problem for both the aesthetics and functionality of your landscape, although it does provide a great opportunity for a rain garden! View the [Rain Gardens](#) section of [Chapter 6](#).

## Constraints

- UTILITIES! Avoiding your utilities is top priority. To learn the location of all your utilities, **call 8-1-1**.
- Your water feature **MUST** be downhill from any house crawl space or basement, wellhead, and septic system drain field. It is suggested that all water features remain at least 10 ft from the house crawl space or basement and wellhead and 25 ft downhill or lateral from a septic system drain field. Other state and local regulations might apply.
- Soil type can also be a limiting factor in your SCM location and type choices. Some considerations are:
  - The seasonal high water table (SHWT) should be at least two feet below the bottom of your SCM.
  - If you have poorly drained soils, it would be best to consult a professional.
  - Consult [Chapter 2: Step 4](#) for more reasons to call a professional.



# Factors in Selecting the SCM

## Environmental Factors

The first step in selecting your stormwater control measure is to review the stormwater runoff volume for the specific site. In residential developments there are no requirements for reducing rate or volume of runoff from a site even though this is one of the largest known sources of water pollution. As WaterRICH citizens, we are looking to return the hydrology of the site towards its undeveloped natural state and will use this information in the siting and selection of an appropriate SCM.

Stormwater management practices for residences are designed to be both aesthetic improvements as well as pollutant-removal devices. Typically, the lower you are in the watershed, the more water runoff and pollutants you will receive. Slowing runoff and allowing it to be absorbed by a cast of native plants will filter the runoff returning the stormwater to the cycle cleansed and healthy. Examine the table below to get a better idea of what improvements you will be making to your watershed by taking responsibility for the runoff from your property.

Stormwater Pollutant	Sources	Related Impacts
<b>Nutrients:</b> Nitrogen, Phosphorus, various others	Animal waste, fertilizers, failing septic systems	Algal growth, reduced clarity
<b>Total Suspended Solids (TSS):</b> Sediment deposited and suspended in the water	Construction sites, bare soil, road sanding, eroding banks	Increased turbidity, reduced clarity, deposition of sediment, lower dissolved oxygen
<b>Organic Materials</b>	Leaves, grass clippings, compost, brush	Oxygen deficit to receiving waters
<b>Pathogens:</b> Bacteria and Viruses	Animal waste, livestock, failing septic systems	Human health risks
<b>Hydrocarbons:</b> Oil and Grease, Polycyclic aromatic hydrocarbons	Automobile wear, waste oil, emissions and fuel leaks	Water toxicity, sediment, and bioaccumulation through the food chain
<b>Metals:</b> Lead, Copper, Cadmium, Zinc, Mercury, Chromium, Aluminum	Wear of automobile brake linings and tires, emissions and fuel leaks, and metal roofs	Water toxicity, sediment, and bioaccumulation in the food chain
<b>Pesticides:</b> PCBs, Synthetic Chemicals	Herbicides, insecticides, fungicides, etc.	Water toxicity, sediment, and bioaccumulation in the food chain
<b>Chlorides</b>	Road salt, uncovered salt storage	Toxicity of water columns and sediment
<b>Trash and Debris</b>	Litter washed through storm drain networks	Degradation of the beauty of surface waters, threat to wildlife

*Adapted from Minnesota Urban Small Sites BMP Manual*



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*Community members installing a rain garden at a City of Asheville fire station*

## Physical Factors

The physical factors that determine the selection of stormwater control measures include soils, depth to the water table, drainage area, areas of concentrated pollutants, slope of site, and the area required. These are all elements you should review in the site inventory and analysis section in [Chapter 2](#).

## Social Factors

In any design or modification, the social factors need to be assessed to assist in selecting an appropriate feature. These factors include existing and future elements such as playground areas, patios or pathways. Many of these you examined in the site Inventory and analysis process. In addition (if you didn't already), weighing the maintenance requirements and community acceptance of a given practice will help in the selection process. In Western North Carolina, we have a mix of acceptance levels of any given feature based on physical appearance and nuisance problems.