

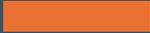
Presented by: Rich Wirtz, P.E., CFM

What are Storm Water Best Management Practices (BMP's) and Why Do We Have Them?

What are Storm Water BMP's?

Best Management Practices (BMP's): A variety of methods and devices used to manage and control the quantity and/or quality of storm water runoff.





How do They Work?

- BMP's used to manage the quantity of storm water runoff work by storing or infiltrating a portion of the volume of runoff from the developed site.
 - Examples of BMP's
 - Wet and Dry Ponds
 - Infiltration Basins, Swales, and Rain Gardens

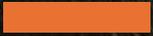


Wet Pond and Infiltration Basin

2022. 6. 16

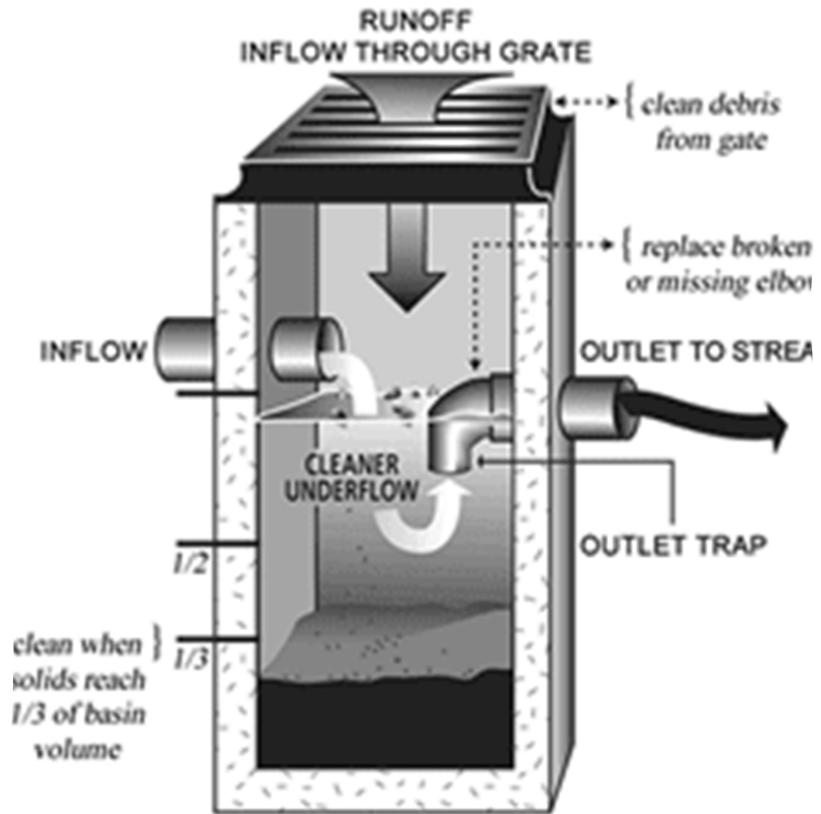


Dry Pond



How do They Work?

- BMP's used to manage the quality of storm water runoff primarily work by:
 - Filtration (filter strips and bioretention ponds)
 - Infiltration (infiltration basins and swales)
 - Settling (wet detention ponds and catch basins)



- Bioretention Basin, Catch Basin, Filter Strips

Goal of BMP's

1. Improve water quality and reduce or eliminate the quantity of pollutants that enter surface waters.

2. Reduce the peak rate of runoff from development.

- Examples of Surface Waters
 - Pewaukee Lake
 - Wetlands
 - Pewaukee River
 - Fox River



Why Do We Have BMP's?



It all Starts with the Clean Water Act!



- First enacted in 1948 (Federal Water Pollution Control Act)
 - Authorized the Surgeon General, in cooperation of Federal, State and Local entities, to prepare comprehensive programs for eliminating or reducing the pollution of interstate waters and tributaries.
- The Act has been amended numerous times 1961, 1970, 1972, 1978, & 1987
- The 1987 amendment required the States to develop and implement programs to control non-point sources of pollution (pollutants in rainfall runoff) from:
 - Farms and urban areas
 - Construction sites
 - Forestry
 - Mining sites

From Federal Government to the State of Wisconsin



- Under State Statute Chapter 283, the Wisconsin Department of Natural Resources (WDNR) was given all authority necessary to establish, administrate, and maintain a State pollutant discharge elimination system.
- WDNR developed the Wisconsin Pollutant Discharge Elimination System (WPDES) Storm Water Discharge Permit Program which is administered under the authority of NR216 of the Administrative Code. (October 1994)

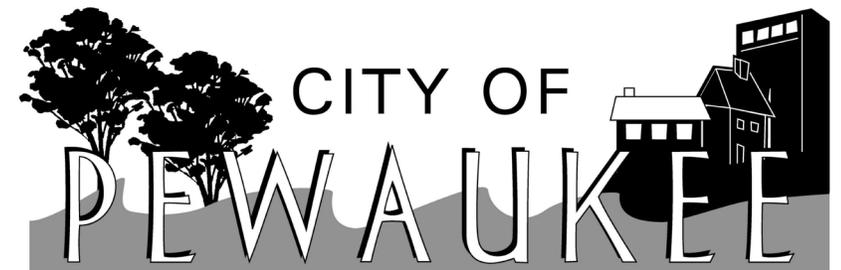
Continued...

- The program established guidelines whereby industrial facilities, construction sites, and municipalities were required to apply for a storm water discharge permit.
- NR216 has undergone several revisions (1997, 2002, 2004, 2011, 2022) to generally:
 - Refine the criteria defining those discharges requiring a permit.
 - Establish performance standards for storm water discharges requiring a permit.



From the State to the City of Pewaukee

- February 2000
 - The City was notified by WDNR that it was 1 of 7 communities designated as a significant contributor of pollution through storm water discharges to the Fox River.
- January 2001
 - The City entered into a cooptative agreement with the City of Waukesha, Town of Brookfield, Town of Delafield, Village of Lisbon, Village of Waukesha, Village of Pewaukee, and Village of Sussex to file a joint permit.
- September 2002
 - The joint application was submitted to the WDNR.
- November 2004
 - The City received its WPDES permit.



Requirements of the City's WPDES Permit

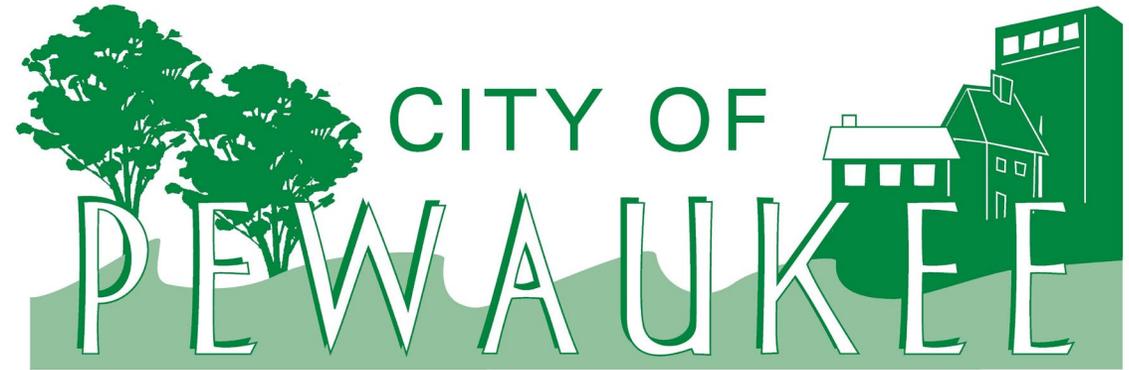
- The City's permit requires us to reduce pollutants from storm water runoff by implementing a variety of storm water management programs.
 - Illicit Discharge Detection & Elimination Program
 - Post-Construction Storm Water Management Program (why we are here)
 - Pollution Prevention Program
 - Public Education & Outreach Program
 - Public Involvement & Participation Program
 - Construction Site Pollutant Control Program



City of Pewaukee Post Construction Site Pollutant Control Program

Chapter 19 of the Municipal Code requires all post developed sites that had one or more acres of land disturbing activity to:

- Implement BMP's to reduce discharge of Total Suspended Solids (TSS) from the site by 80%.
- Maintain or reduce the peak discharge rate from the developed site to that of the predeveloped site for 1-year, 2-year, 10-year, & 100-year 24-hour storm.
- Infiltrate a portion of the post developed runoff volume as compared to the predeveloped site to the maximum extent practicable.
- Require an agreement covering the maintenance of all BMP's necessary to comply with the ordinance.



The image features a dense field of 3D-rendered question marks. Most are dark grey and recede into the background, creating a sense of depth. In the center, one question mark is highlighted in a bright yellow color. Overlaid on this yellow question mark is the word "Questions?" in a clean, white, sans-serif font.

Questions?