

*Waukesha County*  
**Stormwater Management  
& Erosion Control**  
*2016 Ordinance Update*

*(Chapter 14, Article VIII County Code)*



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# Presentation Outline

## ➤ Background

- History/purposes of County SW ordinance
- Reasons/process for ordinance updates

## ➤ Summary of ordinance updates (handout)

- Project Engineer duties
- Basement wetness & flooding prevention stds. updates



# Purposes of Stormwater Ordinance

- Does not regulate land use (not zoning)
- Sets a series of SW performance standards for new developments during & after construction in order to:
  1. Prevent water pollution (#1 source/Wauk. Co.) – fed./state
  2. Maintain gw recharge/infiltration/base flows – state/local
  3. Minimize streambank erosion – state/local
  4. Prevent flooding/drainage issues - local
  5. Avoid related litigation in courts - county



# Waukesha County SW Ordinance

- Adopted in 1992 – Construction site erosion control only
- Amended in 1998 – Added post-construction stormwater mgt.
  - Waukesha County assisted DNR with writing model ordinance
  - County Stormwater Advisory Committee created
- Repealed & recreated in 2005
  - New state nonpoint pollution performance standards
  - Ordinance administration issues (BMP as-builts, M.A., PE, etc.)



# Why update ordinance now?

- State code updates:
  - NR 151 – nonpoint pollution performance standards (2013)
  - NR 216 – stormwater discharge permits (2014)
- Municipal separate storm sewer system (MS4) permits:
  - Reissued “general permit” 4/29/14
  - May 2016 deadline to update local ordinances
- Local:
  - Improve ordinance administration/enforcement
  - County Authorized Local Program (ALP) requirement (2010)



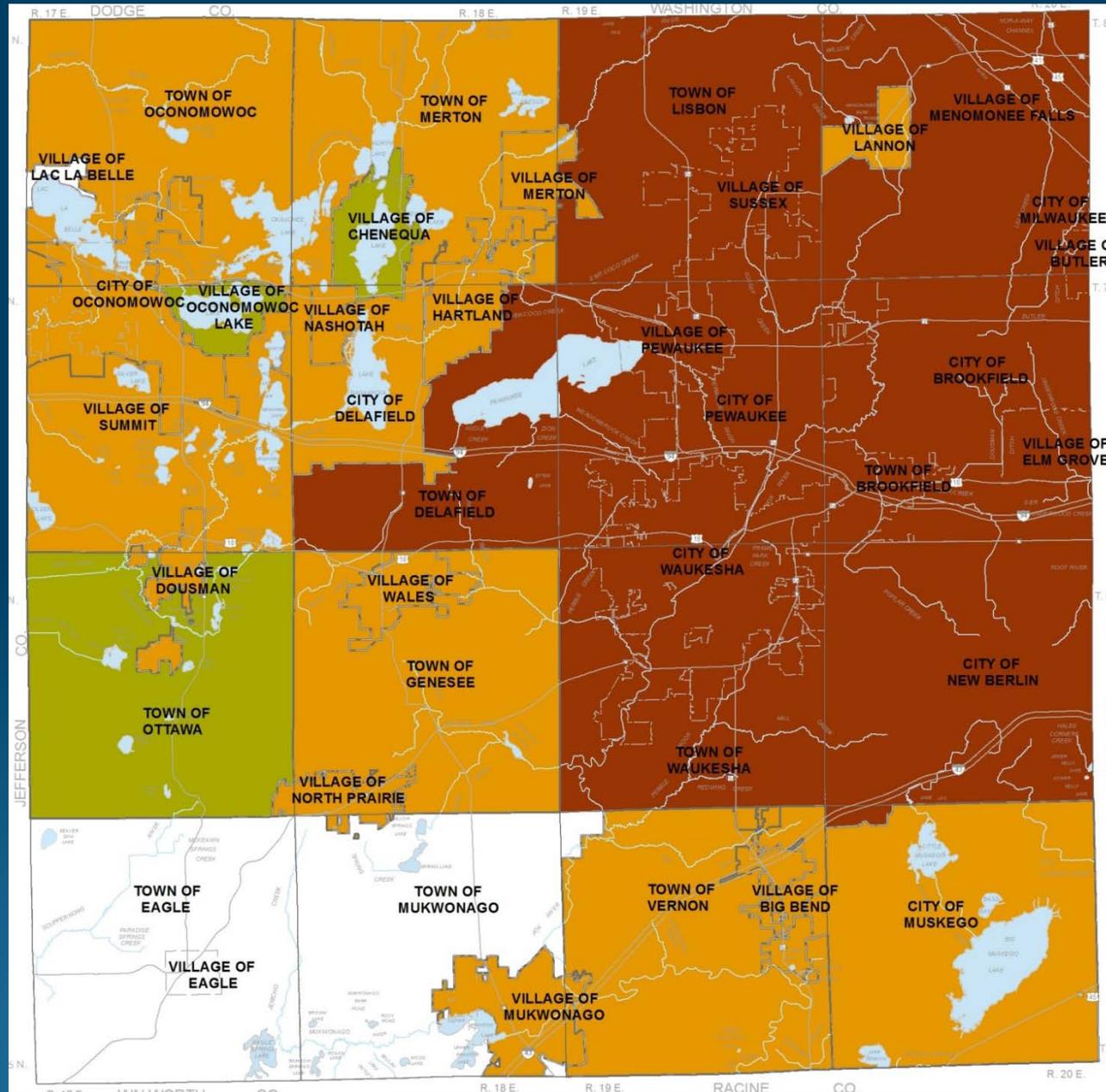
# Community MS4 Permits in Waukesha County

## Legend

- Phase I (13) 2004
- Phase II (18) 2008\*
- Exempted (3)
- Not required (4)

\* Includes Waukesha Co.

(31 out of 38 munic.)



# Ordinance Update Process

- Stormwater Advisory Committee (by Co. code):
  - Made up of local developers (MBA), engineers, municipal officials, DNR, SEWRPC, County Board, LRD staff
  - Met Sept. 10, October 13 and November 3, 2015
  - Unanimously recommended approval by County Board
- November 12, 2015:
  - Redline copy & summary posted on County web site
  - Informational meeting/hearing notice sent out



# Ordinance Update Process (cont.)

- Dec. 1, 2015 Informational Meeting/Public Hearing
  - No comments received
- Jan. 26, 2016 approved by Waukesha Co. Board
  - Effective/published date: February 6, 2016



# Summary of Ordinance Updates

- 1. Authority for Ordinance

- Added reference to s. 281.33 Wis. Stats. (2013 rev.)

- When a local ordinance may exceed state codes (no state standard)
- Examples: flooding, basement/groundwater separation, chronic wetness, temperature, TMDL, redevelopment

- Added state pre-emption language:

- When DNR codes/permits may supersede a local ordinance
- Example: “Targeted” Performance Standards (NR 151.004)



# Summary of Ordinance Updates

- 2. Jurisdiction

- Added “County-owned lands” section to clarify that the ordinance applies to all land owned by the County, including highway ROW, parks, trails, substations, etc.
- Needed to comply with ALP and MS4 permit



# Summary of Ordinance Updates

- 3. Definitions (partial list)

- *Modified* for clarification:

- Permit “Applicant” – must be “landowner” as defined
- “County mapping standards” – allows for future datum changes
  - NAD83 (horizontal), NAVD88 (vertical)
- “Impervious surfaces” – all roofs & pavement are considered impervious at time of application (fee)/may change later as BMPs



# Summary of Ordinance Updates

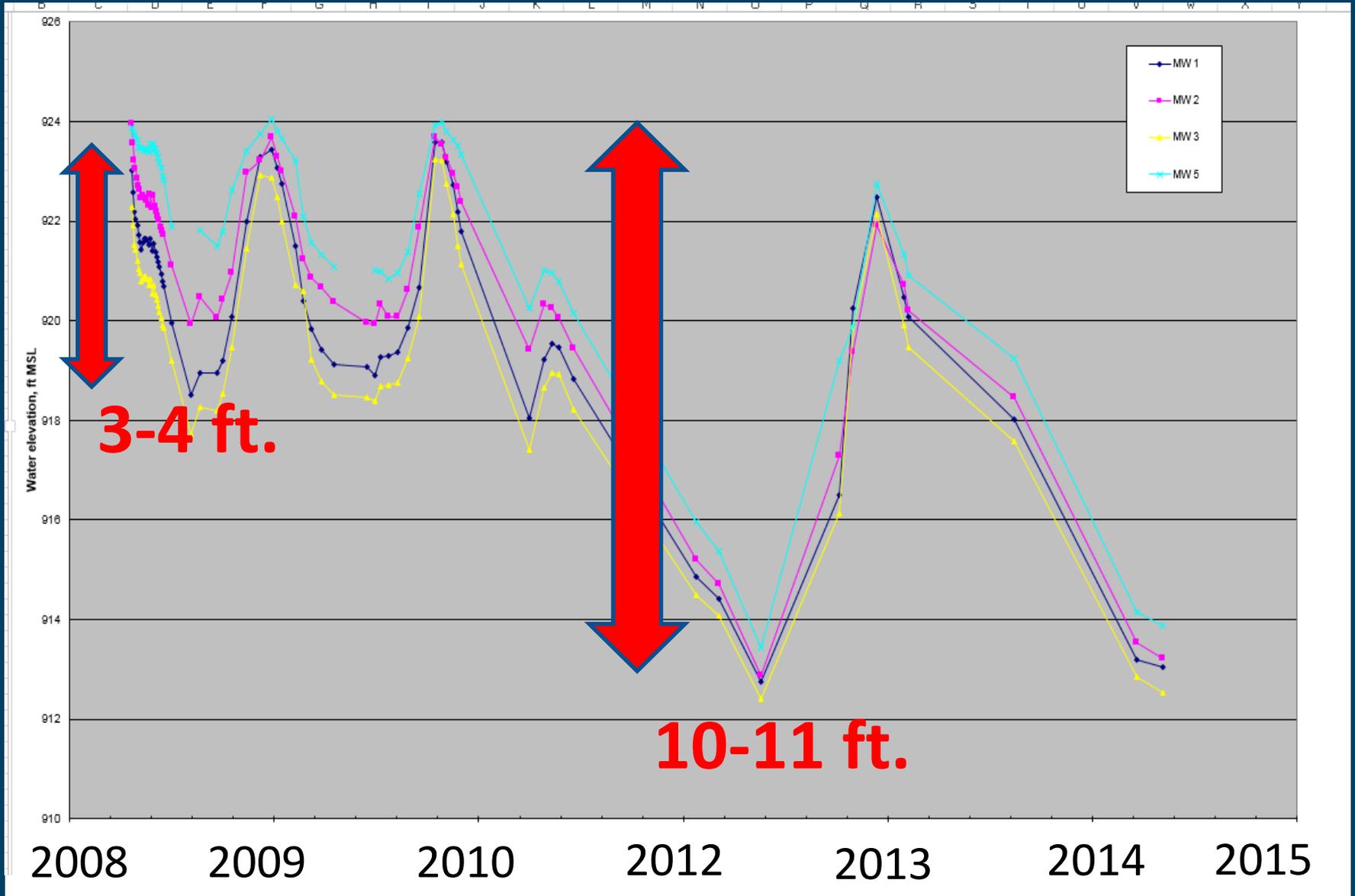
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- *Added* for clarification:

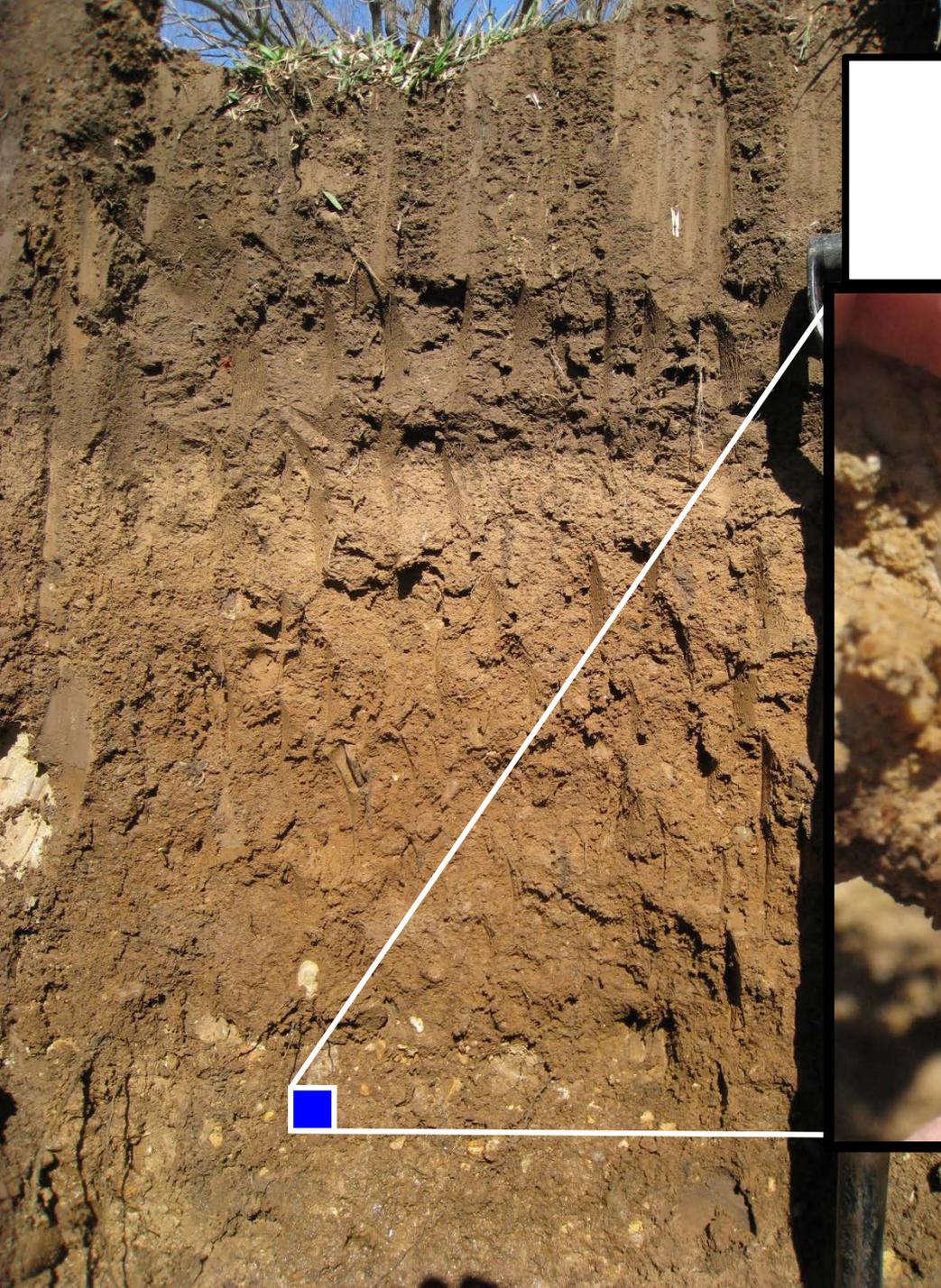
- “Highest groundwater table” – the upper limit of the zone of soil saturation caused by underlying groundwater at its highest level based on soil and site evaluations in accordance with technical standards prescribed in this ordinance.
- Removed the word “seasonal”
- Water table fluctuates year-to-year and seasonally



# Example Groundwater Monitoring Well



Redoximorphic  
features = HGT





# Summary of Ordinance Updates

- 3. Definitions

- Added for clarification:

- “Landowner” – holds fee title to prop./utility company exception
- “Permit holder” (or successors): land transfers = permit transfers
- “Qualified professional”



# “Qualified Professional”

- “A Professional Landscape Architect, Professional Hydrologist, or Professional Engineer licensed in Wisconsin, or a person certified in erosion control planning, implementation or inspection.”
  - NOT “their designated representative”
- Applies to:
  - Erosion control inspections
  - BMP maintenance inspections



# Summary of Ordinance Updates

- 4. Applicability & Exemptions (when SW permit applies)
  - Added BMP maintenance trigger
  - Added trigger date for new impervious surfaces (1998)
  - Clarified how applied to highway projects/DOT
  - Added 1-2 family > 1 acre disturbed area per NR 151
  - Added flexibility to permit technical exemptions
    - May exempt “any or all” ordinance requirements (discuss later)



# Summary of Ordinance Updates

- 5. Certification of Compliance (stormwater)
  - Clarified that any maps submitted to Planning/LRD for new land divisions need to be consistent
  - Site drainage standards apply to all SW permits
  - 10 working day process



# Summary of Ordinance Updates

- 6. Stormwater Permit Requirements (general)
  - Clarified role of Project Engineer – to include erosion control
    - “Oversee and verify compliance with SW Permit”
    - Created “Project Engineer Duties” summary (PE contracts)



# Project Engineer Duties (part of matrix)

Required Tasks to Comply with the Waukesha County Stormwater Ordinance (bold task = Project Engineer Primary Duties)	Responsible Party (generalized) (Primary = Primary responsibility / Assist = Assist others / Report = Report received from others)						
	Owner & Permit Holder	Project Engineer/ Constr. Mgr.	Grading Contractor	Erosion control BMP installer	"Qualified Professional"	Landscaper	Surveyor
1. Prepare and PE stamp stormwater and erosion plan and BMP designs		Primary					
2. Apply for and obtain Stormwater Permit	Primary	Assist					
3. Install erosion control and site stabilization BMPs and complete repairs when ordered		Assist	Primary	Primary		Primary	
4. Complete site grading per approved plans		Assist	Primary				Assist
5. Oversee & inspect grading & construction of <i>engineered</i> erosion control & stormwater BMPs (basins, sed. traps, etc.)		Primary					Assist
6. Inspect installation of <i>non-engineered</i> erosion control BMPs (perimeter control, erosion matting, seeding, etc.)		Report	Report	Report	Primary	Report	
7. Oversee and coordinate utility installation and site restoration with the rest of construction and erosion control efforts		Primary	Assist	Assist		Assist	Assist
8. Inspect erosion weekly & after rain events		Report	Report	Report	Primary	Report	
9. Oversee erosion control inspections and		Primary					

# Project Engineer (large site)

- Prepare/PE stamp stormwater & erosion control plans
- Serve as primary regulatory contact
- Oversee & inspect grading & BMP installation
- **Oversee erosion control inspections & repairs**
- **Oversee & coordinate utilities & site restoration**
- **Coordinate regulatory erosion control repairs**
- Oversee & verify stormwater BMP construction (as-builts)
- Prepare/submit BMP maintenance agreement addenda



# Summary of Ordinance Updates

- 6. Stormwater Permit Requirements (general)
  - Exempted inspection logs on smaller sites (<1 acre)
  - Allows permit phasing (late season grading)
  - Added “involuntary” permit transfers (death/foreclosure)
  - Clarified \$ release conditions include: plantings/MA addenda



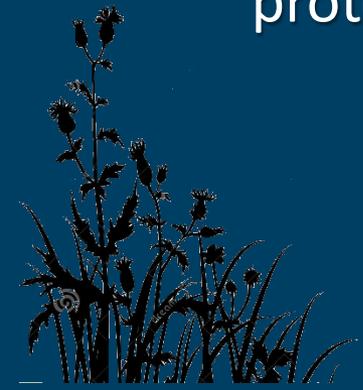
# Summary of Ordinance Updates

- 7. Erosion Control Plan Requirements
  - Updated performance standard to 5 tons/ac./year (NR 151)
  - **Stabilize open channels before frozen ground/snow cover**
  - Requires as-built/design data for unknown BMPs
  - Added spill prevention (NR 151)



# Summary of Ordinance Updates

- 8. Stormwater Management Plan Requirements (NR 151)
  - Requires wetland boundary delineation up front
  - Clarified perform. standards apply to each discharge point
  - Added 1-year storm (peak flow)
  - Made minor revisions to protective area standards
  - Revised infiltration standards, prohibitions, groundwater protection standards, and exemptions



# Infiltration Performance Standards

Percent Connected Impervious Surface	Description/Example land uses	Post-development Infiltration Volume <sup>a</sup>	Maximum Effective Infiltration Area
Up to 40%	<u>Description:</u> Low imperviousness <u>Example land uses:</u> low density residential, parks, cemeteries	90% of pre-development <sup>b</sup>	1% of site
>40% up to 80%	<u>Description:</u> Medium imperviousness <u>Example land uses:</u> medium and high density residential, multi-family residential, industrial, institutional, office park	75% of pre-development	2% of site
>80%	<u>Description:</u> High imperviousness <u>Example land uses:</u> commercial strip malls, shopping centers, commercial downtowns	60% of pre-development	2% of site

<sup>b</sup> Not less than 25% of 2-year/24 hour runoff volume

# Infiltration BMP Separation Distances & Soil Characteristics

Source Area	Groundwater or Bedrock Separation Distance	Soil Characteristics*
<b>Industrial, commercial, and institutional parking lots/roads</b>	5 feet or more	Filtering layer
<b>Residential arterial roads</b>	5 feet or more	Filtering layer
<b>Roofs draining to subsurface infiltration practices</b>	1 foot or more	Native or engineered soil with particles finer than coarse sand
<b>Roofs draining to surface infiltration practices</b>	Not applicable	Not applicable
<b>All other impervious source areas</b>	3 feet or more	Filtering layer

\* “Filtering layer” = 3ft. soil w/ 20% fines, 5 ft. w/ 10% fines or equiv. engineered soil

# Summary of Ordinance Updates

- 8. Stormwater Management Plan Requirements (local)
  - Added “changes to stormwater discharges” provision
    - Reflects stormwater case law / downstream impacts
    - If LRD determines post-development flow paths/discharges may cause significant negative impact to downstream property
    - May require written authorization or drainage easement
  - Clarified that internally drained standards exist (SAC/2007)
    - 100-year runoff, RCN 98, + 2 feet, etc.
  - “Additional requirements” per statutes (flooding/TMDL)
  - Updated basement/groundwater protection standards

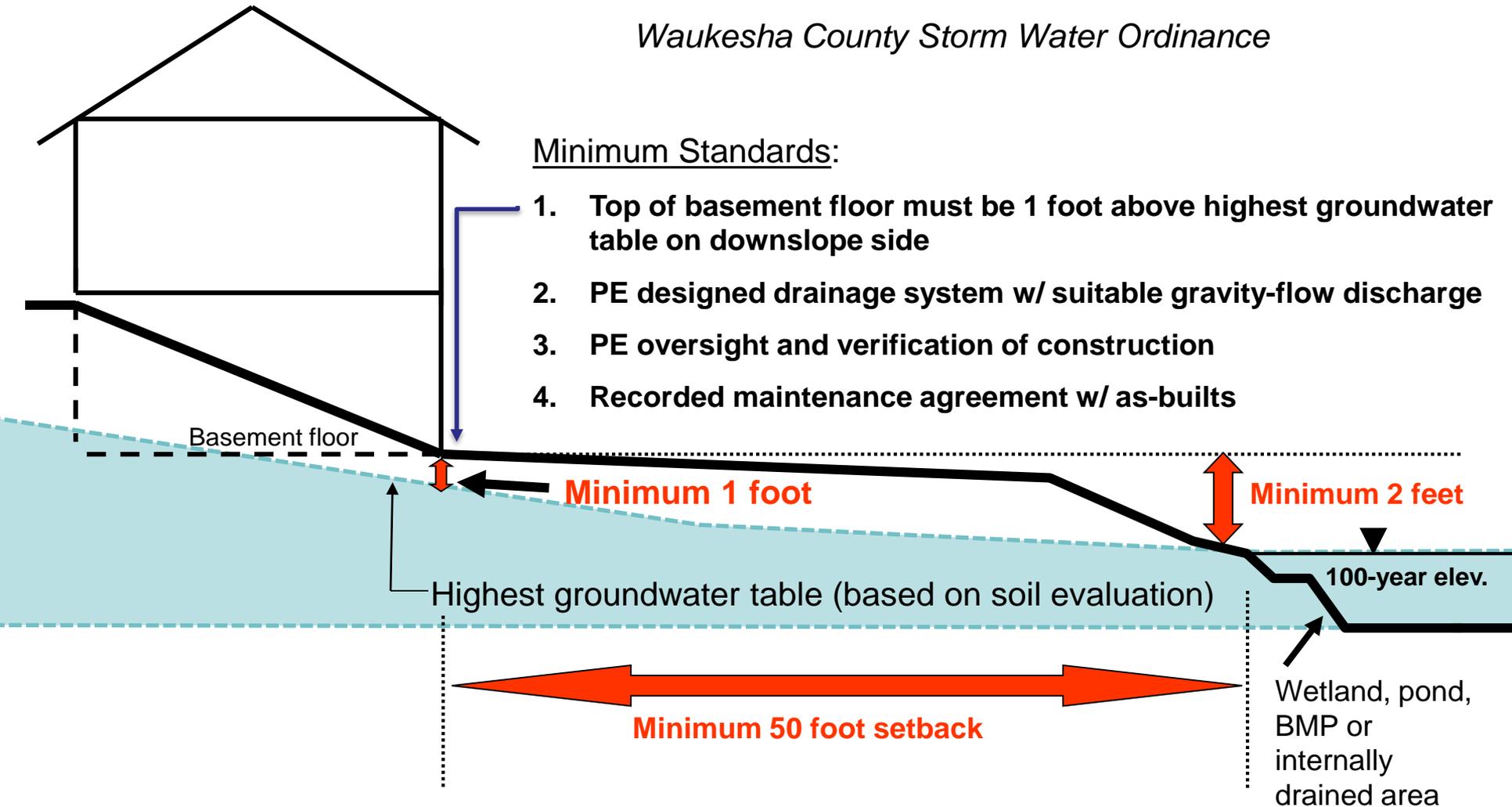


# Basements Partially Below Highest Groundwater Table on Sloped Sites

*Waukesha County Storm Water Ordinance*

## Minimum Standards:

1. Top of basement floor must be 1 foot above highest groundwater table on downslope side
2. PE designed drainage system w/ suitable gravity-flow discharge
3. PE oversight and verification of construction
4. Recorded maintenance agreement w/ as-builts



# Summary of Ordinance Updates

- 8. Stormwater Management Plan Requirements (local)
  - Technical exemption added: **No Significant Off-site Impacts**
    - Must be less than one acre in size
    - **LRD determines** the activity will have no significant impact on another property or an environmentally sensitive area
    - Examples: internal drainage, very large/flat buffer, etc.



# Summary of Ordinance Updates

- 9. Technical Standards and Specifications
  - Added state modeling references (SLAMM/USLE)
  - Updated rainfall distribution per NRCS (TR-55/MSE3)
  - Updated rainfall depths per National Weather Service/2013
  - Updated runoff curve numbers per NR 151



# Updated Rainfall Depths per Design Storm

Design Storm	1-year 24-hour	2-year 24-hour	10-year 24-hour	100-year 24-hour
Rainfall Depth	2.4 inches	2.7 inches	3.81 inches	6.18 inches

↑ 0.1"

↓ 0.19"

↑ 0.58"

National Weather Service used 60 years of additional data to update these figures



# Updated Maximum Runoff Curve Numbers for Certain Predevelopment Land Uses

Predevelopment Land Use	Hydrologic Soil Group (A-D) and Maximum Runoff Curve Number (#)			
	A	B	C	D
Woodland	30	55	70	77
Grassland/meadow	39	61	71	78
Cropland	55	69	78	83

- Grassland/meadow: 5 consecutive years grass, etc.
- Woodland: 10 or more trees  $\geq$ 4 inch diameter



# Summary of Ordinance Updates

- 10. Maintenance of Stormwater BMPs

- Added language for sites that already meet performance standards with existing conditions (ex: internally drained)
  - May require maintenance agreement, site survey, etc.
- Clarified that applies to all new CSMs and plats
- Requires LRD approval for groundwater pumping to BMPs
- Corrected statutory reference typo for “special charges”



# Wrap up: Top 5 Changes

(having the most impact on the SW permit process)

1. **Stormwater** is ONE WORD!
2. USLE/erosion control calculations (per NR 151)
3. “Qualified Professional” (erosion control inspections)
4. Project Engineer oversight of erosion control
5. Updated technical & performance standards



# Questions?

