



PARTNERS FOR A CLEANER ENVIRONMENT

August 11, 2014

Joseph M. Burtch, P.E.  
Assistant City Engineer  
City of West Allis  
West Allis City Hall  
7525 West Greenfield Avenue  
West Allis, WI 53214

Subject: *Peak Flow Compliance – Additional Noncompliant Metersheds*

Dear Mr. Burtch:

Improving the management of peak flow rates is critical for maximizing the efficiency and effectiveness of a sewerage system and to achieve current federal, state, regional, and local environmental goals. Excessive peak flow rates are attributed to several environmental, health and safety impacts including basement flooding and sewage overflows, and can also increase operating costs.


Historically, efforts to reduce peak flow rates have taken many forms over many years. Despite past actions, peak flow rates remain excessive in some cases. To comply with the current state and federal regulations, and with stipulations that resolved recent litigation, and to implement the Milwaukee Metropolitan Sewerage District's (MMSD) *2020 Facilities Plan*, the MMSD established limits for peak hourly flow rates in January 2010, sec. 3.201, MMSD Rules. Since adoption of these limits, the MMSD has been evaluating peak flow measurements on a metershed basis to determine whether the metersheds comply with this section of MMSD Rules.

The MMSD determined the peak hourly flow rates using statistical analysis on flows generated from long-term weather data in a simulation model based on historical conditions of actual flow measurements and weather data for the metershed.

Two additional metersheds that include three City of West Allis (City) sewersheds has recently been identified as being above the performance limit established by sec. 3.201, MMSD Rules.

**Milwaukee Metropolitan Sewerage District**

260 W. Seeboth Street, Milwaukee, WI 53204-1446

414-272-5100 [www.mmsd.com](http://www.mmsd.com) 

Metershed (Evaluation Period)	Sewersheds	Estimated Sewered Areas (Acres)	Peak Hourly Flow Rate (gallons per acre per day)	
			Area-Velocity Data	MMSD Limit
MS0118 (10/16/2006 – 11/30/2010)	MI1123, <b>WE1018</b> , <b>WE1032</b>	<b>48.21</b> + 149.37 + 161.49 = 359	40,800	21,000
MS0415 (2/8/2004 – 1/29/2007)	<b>WE4023</b>	<b>290.98</b>	36,400	21,000

- Metershed MS0118 had previously been identified as “Inconclusive” because we did not have enough data to make a determination as to its status concerning compliance; however, adequate data is now available to make the determination that the area tributary to the meter is “Noncompliant”.
- Metershed MS0415 had previously been inadvertently omitted from MMSD correspondence; however, it would have been identified as compliant based on the level-only flow metering data. The current analysis is based upon area-velocity flow measurements. Area-velocity flow meters record a depth reading and also a velocity reading. Based on these two readings a flow rate is determined. Because the two variables are recorded using the area-velocity flow meters, they are more accurate in calculating flow rates than the level-only method.

The City of Milwaukee is also being informed of their additional noncompliant sewersheds.

Today’s notice recaps and updates information provided to the City by the MMSD in previous correspondence.

- Letter dated December 11, 2009. Analysis was based upon level-only flow measurements. Level-only meters convert a depth of flow reading to a flow rate assuming a theoretical (steady, uniform, and non-spatially varied) velocity of the flow. A total of seven metersheds, were identified as being above the performance limit established by sec. 3.201, MMSD Rules.
- Letter dated September 13, 2010. Analysis was based upon area-velocity flow measurements. Area-velocity flow meters record a depth reading and also a velocity reading. Based on these two readings a flow rate is determined. Because the two variables are recorded using the area-velocity flow meters, they are more accurate in calculating flow rates than the level-only method. The peak hourly flow rates included in the September 13, 2010 letter indicated that a total of three metersheds were determined to be noncompliant (above the performance limit established by sec. 3.201, MMSD Rules). Changes since the December 11, 2009 letter include:
  - Three metersheds (MS0305, MS0604 and MS0609) were confirmed to be noncompliant
  - One of the metersheds (MS0603) identified in the December 11, 2009 was determined to be compliant.

- Three of the metersheds (MS0118, MS0309 and MS0316) identified in the December 11, 2009 were determined as “Inconclusive” because we did not have enough data to make a determination as to their status concerning compliance.
- Letter dated January 4, 2011. The MMSD reviewed the City’s schedule and concluded that the schedules proposed were not aggressive enough and that the City should revisit the schedules and submit more metershed specific schedules no later than 45 days after the date of that letter.
- Letter dated May 4, 2011. In addition to asking questions in response to the City’s February 14, 2011 letter, the MMSD assigned staggered dates to the noncompliant metersheds as to when construction activities were to take place.
  - MS0609: March 1, 2012
  - MS0604: March 1, 2012
  - MS0305: September 1, 2013

West Allis has provided status updates of their progress annually on the following dates.

- November 10, 2010
- February 14, 2011
- May 27, 2011
- November 11, 2011
- June 1, 2012
- January 7, 2013

The MMSD understands and recognizes that peak flow issues are complex and that there are a multitude of potential sources of infiltration and inflow that impact the municipal sewer systems including infiltration and inflow sources on private property. Therefore, MMSD staff is willing to help you address this source of water through the Private Property Infiltration and Inflow Reduction Program that began in 2010. It is anticipated that you will integrate this effort with your peak hourly flow rate reduction program.

**We are requesting that the City provide its schedule to address these newly identified “Noncompliant” sewersheds by no later than October 15, 2014.**

If you have any questions regarding this notice, please contact me at 414-277-6386 or [tsimmons@mmsd.com](mailto:tsimmons@mmsd.com). Thank you for your cooperation.

Sincerely,



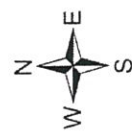
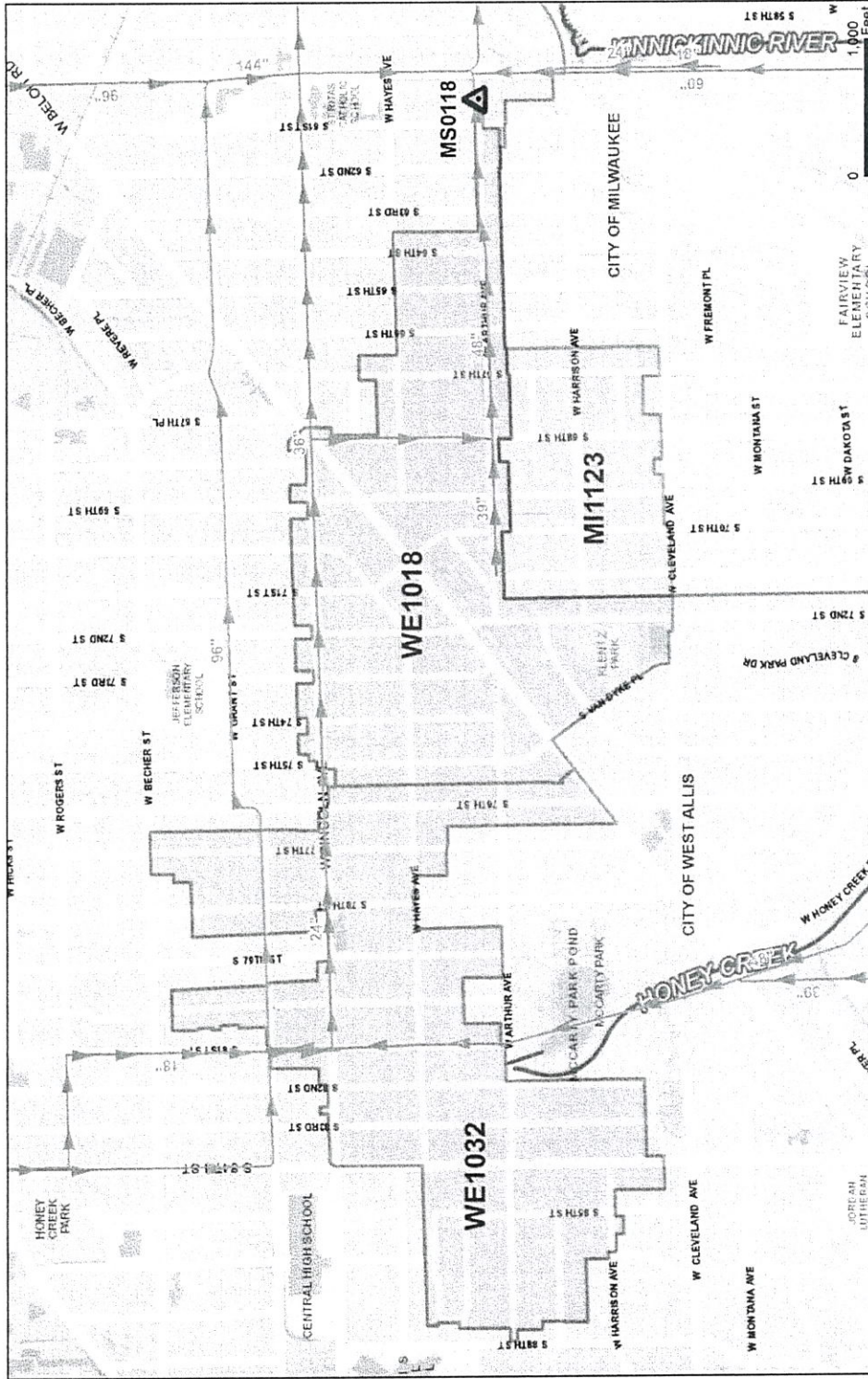
Thomas F. Simmons, P.E.  
Senior Project Manager

Joe Burtch  
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Enclosure

ECC: Timothy R. Bate  
Cari L. Roper  
Debra L. Jensen  
Theera Ratarasarn, WDNR





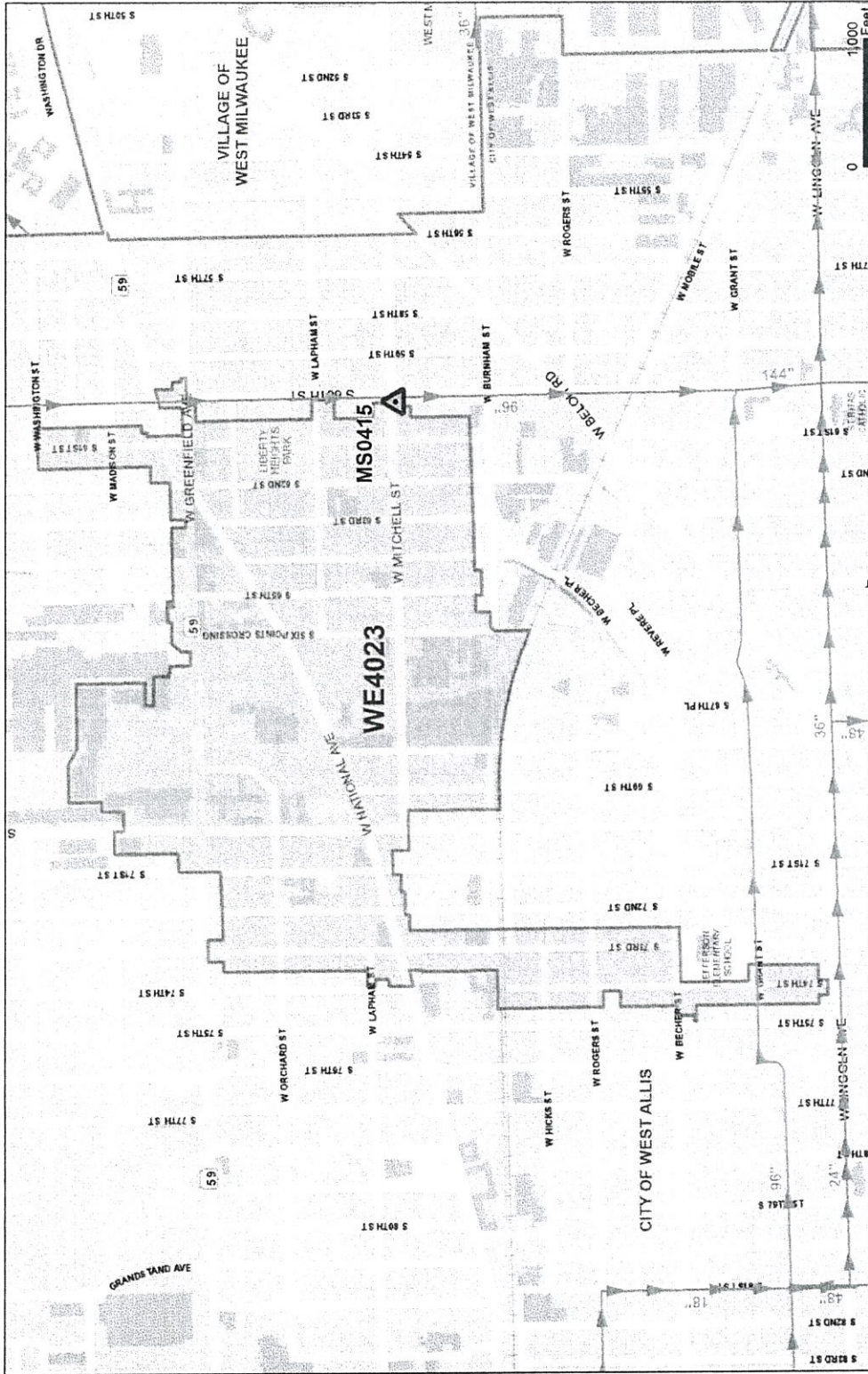
**FLOW METER**  
 MS0118

**SEWERSHEDS TRIBUTARY TO MS0118:**  
 MILWAUKEE (48 acres)  
 WEST ALLIS (311 acres)

**PIPELINE**  
 MIS

**RIVER OR STREAM**

**MS0118**



**SEWERSHEDS TRIBUTARY TO MS0118:**

**FLOW METER** MS0415

**PIPELINE** MIS

**WEST ALLIS (291 acres)**

**SCALE:** 0 1000 Feet

**ORIENTATION:** N (North), S (South), E (East), W (West)