

October 17, 2016

Dear Grosse Pointe Resident/Property Owner,

I would like to provide an update to the property owners who have notified the City that they were affected by basement flooding on August 16. We do want to provide you with ongoing communication by sharing the findings of the City's engineers as we await the response from our insurance company regarding the claims filed. I will also address some frequently asked questions below, in lieu of a public meeting, given that the engineer report has basically confirmed what was reported to you initially.

#### **What Happened**

We have had engineers, pump station experts and equipment companies investigating and working at the City's Pump Station at Neff Road since the morning of the event. Attached please find the report from the engineering firm. The engineers have confirmed that the City's three large storm water pumps did initially work as programmed after the rainstorm started. However, the initial pump's control panel overheated, causing that pump to shut down. A temporary power outage caused the other two pumps to shut down. With all three pumps down and such high-intensity rainfall in short period of time, backups began to occur. When the second two pumps were manually restarted per standard protocol, the water level was brought down to normal.

#### **What We're Doing**

It has been decades since the City experienced any major flooding with essentially the same system of multiple backups in place at the Pump Station. This was an extremely rare consequence of a high-intensity rainfall in a short duration of time combined with the three pumps going out. The City has not experienced any issues with its storm water pumps since the August 16 event, including last week's even larger storm. That said, we have analyzed how we can enhance our systems and protocols to prevent this from happening again. While the City does not anticipate that a similar situation will occur again, we have taken the following actions:

- Conducted thorough analysis to pinpoint exactly how this happened, thus preventing a similar incident in the future.
- Repaired the control panel and restored functionality of the first pump.
- Upgraded the controls with respect to the power outages and have planned testing with DTE Energy.
- Enhanced protocol to proactively staff the Pump Station when rain is projected during off hours, as an added protection.

### **What You Can Do**

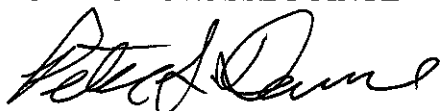
The National Weather Service determined that the August 16 storm produced 2.78 inches of rain at Detroit City Airport. With such a large storm, there are not any guarantees against basement flooding. To further protect your home from basement backups, you may wish to contact a plumber to evaluate the sewage pipes in your home and consider some or all of the following:

- Installation of a sewage pump for your basement to eliminate the gravity connection from your basement to your sewer lead.
- Installation of a check valve in your service lead that connects your basement plumbing to the City sewer.
- Regular maintenance of your service lead to remove blockages caused by roots, grease, trash, or structural defects.
- Disconnect your downspouts from your foundation drains if your plumber determines that your foundation drains are connected to your sanitary sewer lead.
- Elevate your appliances and move valuables to higher locations.
- Review your insurance policies to determine your coverage for basement flooding/sewer backups.

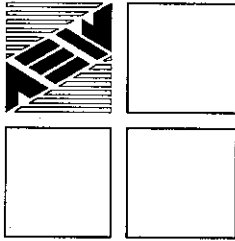
### **What's Next?**

If you filed a damage claim with the City during the 45-day period after the event, your claim has been forwarded to the City's insurance company, Michigan Municipal League Liability and Property Pool (MMLLPP). MMLLPP will evaluate the claims under the state law that governs municipal claims, and they will contact you directly with their determination. We anticipate you will hear from MMLLPP by mid-November, but the City cannot guarantee exactly when the insurance provider will respond to these claims, or if you'll all be contacted at the same time. If you have further questions, please feel free to contact me or Public Services Director Gary Huvaere at 313-885-5800.

Sincerely,  
CITY OF GROSSE POINTE



Peter J. Dame  
City Manager



## ANDERSON, ECKSTEIN AND WESTRICK, INC.

51301 Schoenherr Road, Shelby Township, Michigan 48315

Civil Engineers • Surveyors • Architects 586-726-1234

Findings Regarding the August 16<sup>th</sup> Basement Flooding  
City of Grosse Pointe  
AEW Project No. 0155-0160  
October 14, 2016

Anderson, Eckstein & Westrick (AEW) is an engineering firm providing civil engineering, architecture, consulting and other services to municipal and institutional clients. AEW was engaged by the City of Grosse Pointe to review the August 16, 2016 rain event that resulted in the flooding of more than 200 basements within Grosse Pointe. The assignment was to review what happened and to make recommendations for actions that would reduce the likelihood of such an event happening again. This report is intended to document the findings of that assignment.

To compile this report, AEW has reviewed the available data from the various equipment in the City Pump Station, worked in conjunction with numerous other contractors with expertise in the pump equipment at City facilities, consulted with DTE, contacted other municipalities and agencies, and interviewed City staff. AEW has assisted in investigating this incident soon after the flooding occurred and has been at the site frequently to assess the situation and monitor progress.

Based on our review, we find the following:

### SEQUENCE OF EVENTS

According to National Weather Service records, nearby City Airport recorded 2.78 inches of rainfall starting in the early morning of August 16, 2016. As the rain progressed, the City's Neff Road Pump Station's pump #7 started consistent with normal protocol. With the severe intensity of the rainfall, the City's wet well levels rose quickly. The wet well collects storm and sewer water before it is pumped into the Fox Creek Interceptor to be processed at the Great Lakes Water Authority's Conner Creek facility in Detroit. Pump #7, a large capacity pump, did draw down the wet well. However, pump #7's variable frequency drive controls over heated, tripped due to an "over temp" fault, and shut down. With pump #7 off, pump #2 started per protocol. Pump #2, also a large capacity pump, did start to draw down the wet well. Then, pump #2 tripped due to a power outage and shut down. Then, per protocol, pump #1, the third high capacity pump at the Neff Road facility, started and began drawing down the wet well. Soon thereafter, however, pump #1 also tripped due to a power outage and shut down. The pump station's automatic monitoring equipment called out alarms to City staff. When the Water and Sewer Supervisor arrived at the pump station, he manually re-started pumps #1 and #2 and the water level in the wet well was restored to normal. While the pumps were off, the



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storm water had backed up into property owners' basements through their sanitary sewer connections.

#### RECOMMENDATIONS

To prevent a recurrence, steps were immediately taken to keep pump #7's controls from overheating again. Pump 7 itself was also inspected to ensure that it was able to function. Repairs were made to the controls by August 20 and AEW confirms that pump #7 is in operational order and has been functioning in subsequent rain events with no overheating.

AEW's investigation does confirm that both pump #1 and pump #2 did shut down during the power outage. The Neff Road Pump station is connected to two separate power sources, and the control panels show a power outage alarm from both outside sources (DTE substations). Due to the sensitivity of the equipment, a power outage does not have to affect the whole neighborhood or occur for a prolonged period of time. To preclude a pump shutdown in a similar power outage, AEW reviewed and approved an enhanced protocol which required replacement of some electronic equipment. Testing of this upgrade and all of the electrical equipment including incoming power lines, generator, switch gears and motor starters is scheduled for late October.

While not required as an engineering matter, AEW acknowledges that the City has instituted a practice of scheduling City staffing to monitor the station when storms are expected to occur outside of normal City office hours. AEW does support this as an added precautionary measure.

Sincerely,

Stephen V. Pangori, PE