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Kalamazoo 2018 DWRF Project Plan

1 City of Parchment Lead Water Service Line Replacement

1.1 Project Definition and Overview
On July 26, 2018, the City of Parchment discovered unacceptable levels of PFAS in its drinking water well supply. At that time, the City of Parchment provided drinking water from ground water wells to portions of both the City of Parchment and Cooper Township. The current total service population is approximately 3,100 residential units and several businesses. The service areas are show in Figure 1. Both of these service districts lie north of and adjacent to the City of Kalamazoo. When the PFAS issue was discovered, the three communities of Cooper Township, the City of Parchment, and the City of Kalamazoo immediately began coordinated efforts to shut down the Parchment wells and provide drinking water through emergency interconnections with the City of Kalamazoo water system. City of Kalamazoo was notified at approximately 6:30 pm on July 26, 2018. Temporary water connections were completed and the City of Kalamazoo was flushing the Parchment water system by 12:32 AM on July 27, 2018. Three permanent connections were designed, permitted, constructed, and put into permanent service within 21 days, one connection week each. Flushing and testing of the Parchment system continued after the permanent connections were made and the “Do not drink” order was lifted on August 27, 2018.

The City of Kalamazoo and the Parchment/Cooper system have agreed signed agreements such that the City of Kalamazoo has purchased the current system equity and has begun providing retail water service. As part of the work to connect the Parchment/Cooper water system with the City of Kalamazoo water system, a review was done of the existing service connections in Parchment/Cooper. Based on a search of current water records, the west/central portion of the City of Parchment water system has many homes with (or that may have) lead/galvanized water services (see Figure 2). Although there are approximately 430 parcels in the potential lead service area, detailed record reviews indicate that some of the services have already been replaced and there are approximately 300 remaining which require replacement.

Along with switching water supply from the Parchment wells to the City of Kalamazoo, it is the intent of the project to replace all of the existing lead/galvanized services in the project area with new copper water services from the public water main to the house meter.

As a note, the City of Kalamazoo’s standard policy is (and will remain) to own/operate all water service lines from the water main to the water meter.

1.2 Study Area and Project Zone

Figure 2 illustrates the areas in the City of Parchment where lead/galvanized services have either been directly assessed or determined likely based on service line date of installation. All of the water mains in this area are existing and will not be replaced as part of this project. No new water main extensions are proposed as part of this project.

1.3 Existing Facilities

Figure 1 illustrates the existing Parchment/Cooper water system. Appendix A of the application has maps of the existing Kalamazoo water system and how it is now interconnected with the Cooper/Parchment system. Previous to the PFAS issue, the City of Parchment held the WSSN number and provided water to
themselves and Cooper Township. Cooper has about 600 existing connections and Parchment has around 900 connections.

Appendix A has the report summarizing the modeling results of adding the existing Parchment/Cooper system to the Kalamazoo system. The City of Kalamazoo system is supplied by several well fields scattered throughout the system. Treatment takes place at each wellfield. The City owns all of their system and has entered into agreements with Parchment/Cooper for ownership of that system also.

With the addition of the 1500 service connection from the Parchment/Cooper system, the City of Kalamazoo has a total of 57,768 residential equivalent service connections (86.4% of which are actually residential connections).

As part of a separate project, the City of Parchment will abandon their existing water supply wells in compliance with all rule/regulation requirements.

1.4 Project Need

As part of the work to connect the Parchment/Cooper water system with the City of Kalamazoo water system, a review was done of the existing service connections in Parchment/Cooper. Based on a search of current water records, the west/central portion of the City of Parchment water system has many homes with (or that may have) lead/galvanized water services as shown in Figure 2. As noted above, this project will affect the services to approximately 300 residences.

1.5 Alternatives Analysis

Lead service replacements have been mandated by the State of Michigan so no alternatives were reviewed for this proposed action.

1.6 Proposed Project

Replace all of the existing lead/galvanized services in the project area with new copper water services from the public water main to the house meter. Based on the bid prices for lead service replacement projects in the City of Kalamazoo in 2017 and 2018, we estimate the probable project cost to replace 300 water service lines to be approximately $1,690,000.

1.7 Environmental Preview/Review

In the City of Parchment, all of the proposed water service work will be within existing road right-of-way and on existing building sites. There is no water service replacement work that will impact sensitive areas. The MDEQ self-certification form is included in Appendix C. Communications with SHPO and the Tribal Organizations in Included in Appendix D.

1.8 Other Impacts or Concerns

The City of Kalamazoo’s standard policy is (and will remain) to own/operate all water service lines from the water main to the water meter. Therefore all of the proposed projects include the costs for the entire water service, including meter placement and connection.

The water systems for the City of Parchment and City of Kalamazoo have been modeled to determine if the City of Kalamazoo system can provide adequate supply and pressure to the existing/future Parchment system. Technical Memoranda regarding the modeling results are included in Appendix A. Results
indicate that the interconnection with the City of Parchment system and the City of Kalamazoo system will function correctly and pose no detrimental impacts to either system.

1.9 Mitigation

Installation of individual water services generally does not create any significant disruptions. All water services will be installed and connected with less than one day interruption of water supply to each home. Minor local traffic control will be implements during each connection made to the public water main.

1.10 Public Involvement: Information, Education, Participation, Notice

There have been multiple public meetings in the City of Parchment where information has been presented to the public and public comment taken. On-line and direct communications have been maintained by the City, the County Health Department, and the MDEQ. Public information meetings, on-line information, and direct communications will be maintained until permanent action items have been implemented.

The City of Kalamazoo and the City of Parchment held a public hearing and Public Information meeting on Thursday, March 14, 2019 from 6-8pm, at the United Methodist Church located at 225 Glendale Boulevard, Parchment, Michigan, 49004. The meeting mailer, advertisement, affidavit of advertisement, and list of attendees are included in Appendix B.

The Public Hearing was video recorded by Joe Starr from Public Media Network located at 359 South Kalamazoo Mall, Suite 300, Kalamazoo, Michigan, 49007. All questions posed by the audience during the public hearing were immediately answered. No modifications to the project were required as a result of any of the questions or answers. A copy of the video will be provided in digital format to the MDEQ upon availability the week of March 18, 2019.

The City of Kalamazoo City Commission has its regular meeting on Monday, March 18, 2019. At that meeting, the Commission will consider a resolution to accept the final project plan. That resolution will also be provided to the MDEQ the week of March 18, 2019.
Figures
Figure 2

Areas of existing mains not highlighted also have original copper water services
Memorandum

Date: August 1, 2018
To: Steve Skalski
Company: City of Kalamazoo
From: Prein&Newhof
Project #: 2180076
Re: City of Parchment Water Main Hard Connection – Hydraulic Analysis

Background

The City of Kalamazoo is planning to provide water to the City of Parchment, and has requested a hydraulic analysis to determine if the City of Parchment’s water system can be supplied from two or more locations via long-term hard connections. Using the existing hydraulic models of the City of Kalamazoo and City of Parchment water systems, we analyzed two proposed locations for hard connections between the systems: one at G Avenue and Hanson Street and one at Spanish Road and Virginia Avenue.

The hydraulic analysis will consider each of the following:

- Supply through two connections where either one of the connections may not be available (firm capacity)
- Ability to supply adequate pressures for customers in all seasons
- Ability to provide fire flows which meet or exceed existing available fire flows of 1,000 gpm for two hours throughout the system
- Pressure reducing valves at each hard connection, set at the City of Parchment tank over flow elevation (essentially acting as an altitude valve)
- City of Parchment tank availability for storage
- Supply capacity availability from the City of Kalamazoo
- Supply to the City of Parchment without harmful impact to existing City of Kalamazoo customers

The combined model of City of Parchment water system and the City of Kalamazoo water system surrounding it is shown in Figure 1. Note the transmission (10” main and larger) is shown in pink for each system and 8-inch and larger diameter is shown in blue. These mains are critical to conveying water all parts of the system.

The City of Parchment and City of Kalamazoo water systems were modeled with hard connections at the following locations, as shown in Figure 2.

- G Avenue and Hanson Street (10” to 8”) with 10” PRV
- Spanish Road and Virginia Avenue (8” to 8”) with 8” PRV
Assumptions

The hard connections were modeled using pressure reducing valves, set to maintain pressures in the City of Parchment system just below the top of the City of Parchment tank.

The model was analyzed with each hard connection open individually, and with both hard connections open together.

- Average day and maximum day demands from the existing system are provided in Table 1. These were distributed as in the existing models.
- Pipe roughness is based on the existing calibrated models.
- The hard connections were modeled using pressure reducing valves, set to maintain pressures in the City of Parchment system just below the top of the City of Parchment tank.
- InfoWater Modeling Software, developed by Innovyze, is a fully GIS integrated water distribution modeling and management software application
- The hydraulic model simulated each hard connection open individually and with both hard connections open together.

Results

City of Parchment Water System

Model results show that system pressures are adequate under average day demand conditions for all modeled scenarios: one connection at G Avenue, one connection at Spanish and Virginia, and both connections open simultaneously. As seen in Figures 3 and 4, system pressures at Haymac Drive and Spanish and Espanola are maintained above 30 psi under average day demands. These two locations represent higher elevation areas in the City of Parchment system and are susceptible to low pressures. Figure 5 presents system pressures at 20th and McKinley, which is a low elevation area with higher pressures. As shown in the graph, simulations indicate pressures would be just below 85 psi at 20th and McKinley, which is similar to existing pressures.

Figure 6 illustrates the head range in the City of Parchment tank with each proposed hard connection individually and with both connections operating together under average day demands. The Spanish and Virginia connection is located near the City of Parchment tank, and holds the tank level for consistently so that the tank cannot “turn over” during average day demand conditions, which presents a concern for high water age and low chlorine residual in the City of Parchment system. Water age estimates for several locations in the City of Parchment system with the Spanish and Virginia connection only are provided in Table 2. The G Avenue Connection provides better tank operation under average day demands, allowing the water to “turn over” in the tank a few times per day.

Maximum day and peak hour demands simulated for the City of Parchment system are too high to be supplied by one hard connection at G Avenue individually, as shown in Figure 7. The tank empties with only the G Avenue connection and drops below half full for the Spanish and Virginia connection. Both connections should be operated during peak demands to more effectively maintain levels in the City of Parchment tank.
Available fire flow in the City of Parchment system under the three connection scenarios are shown in Figures 8 through 10. Available fire flows are greater than 1,000 gpm in all locations for all three scenarios, with the exception of the higher elevations area near Haymac Drive and a few short dead end mains. Available flows near Haymac Drive are approximately 600 to 900 gallons per minute.

**Kalamazoo System**

The impact of the hard connections in the City of Kalamazoo’s Intermediate pressure district was also analyzed using the hydraulic model. Table 3 shows the impact on system pressures and available fire flows at several locations throughout the Intermediate pressure district. As seen in the results in Table 3, maximum day pressures in the Kalamazoo system are reduced by anywhere from 2 to 9 psi, with the highest drops experienced near the hard connection points. Both average day and maximum day pressures were modeled throughout the Intermediate pressure district, and the model indicates that pressures are maintained above 30 psi at all locations. Improved transmission main connectivity, as well as the addition of Variable Frequency Drives for pumps at the well stations in the Intermediate pressure district will help maintain pressures during peak hour demands. These Variable Frequency Drives are also recommended for the City well pumps if the City of Parchment is not supplied with water.

Figure 11 shows tank levels at the Mount Olivet Tank during average day demands under all three connection scenarios. Model results indicate that the tank will fill slightly slower and empty slightly faster than under existing conditions with the City of Parchment connections.

**Supply and Storage Capacity**

The Intermediate pressure district is supplied by Pump Station #5 and Pump Station #14, with a total supply capacity of 4.0 mgd and a firm supply capacity of 1.7 mgd from well fields. The Intermediate pressure district can get an additional 4.4 mgd of supply through booster and bleeder stations coming into the district from surround districts. With firm supply from well fields and supply from booster/bleeder stations, the Intermediate pressure district has a firm supply of 6.1 mgd. Existing maximum day demands from both the Intermediate pressure district and the City of Parchment total approximately 4 mgd, or 65% of the firm supply capacity.

The Intermediate pressure district has one 500,000 gallon storage tank, and has access to another 1.5 million gallons of storage in the East Side High pressure district. The East Side High district is connected to the Intermediate pressure district through several bleeder valves and can provide additional flow in case of emergency. In combination with the existing 200,000 gallons of elevated storage in the City of Parchment system, no additional storage is needed at this time.
Conclusion

Model simulations show that the proposed system hard connections are hydraulically feasible, maintaining pressures in the City of Parchment system above 35 psi during existing average day demands with either connection out of service. Both connections are required to maintain pressures above 35 psi during maximum day and peak hour demands. By installing PRVs at both connections, either connection is able to maintain levels in the existing City of Parchment tank for average day demands, but both connections are needed to maintain tank levels under peak demands. Both connections are recommended to be used to supply the City of Parchment system during the summer or other high demand periods. The Spanish and Virginia connection is located close to the City of Parchment tank and does not allow “turn-over” in the tank, even under average day demands. The G Avenue connection is recommended to be used alone during average day demands (fall, winter and spring seasons) to help reduce water age in the City of Parchment system.

Results are as follows:

- System pressures in City of Parchment can be maintained above 35 psi with either connection out of service under average day demands. Both connections are needed together to maintain levels in the City of Parchment tank and keep pressures above 35 psi during peak hour demands.

- The supply capacity to the City of Parchment system is adequate. Each hard-connection and PRV is able to supply the average day demand of 320 gpm on its own, but both hard connections are required to supply maximum day demands without losing system pressure. Maximum day demands in the Intermediate pressure district plus the City of Parchment represent 65% of the firm supply capacity.

- Storage capacity is also adequate for the Intermediate pressure district and City of Parchment.

- Available fire flows in the City of Parchment system meets the existing 1,000 gpm for residential areas with either connection out of service in almost all areas. Simulations for the high elevation area near Haymac Drive indicate that the available fire flow would be between 600 and 900 gpm.

- City of Kalamazoo customers in the Intermediate pressure district would have a slight difference in water supply as a result of the additional supply to the City of Parchment. Pressures drop approximately 5 to 10 psi near the connection points and less in other locations, and available fire flow is reduced by 300 to 500 gpm. The City should consider additional transmission loops in the Intermediate pressure district to connect the storage tanks, pump stations, and new interconnections to the City of Parchment. The City should provide variable frequency drives on the well pumps to maintain current conditions.
### Table 1. System Demands

<table>
<thead>
<tr>
<th></th>
<th>Average Day Demand</th>
<th>Maximum Day Demand</th>
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<tbody>
<tr>
<td></td>
<td>GPM</td>
<td>MGD</td>
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<tr>
<td>City of Parchment</td>
<td>317</td>
<td>0.46</td>
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<tr>
<td>City of Kalamazoo Intermediate Pressure District</td>
<td>912</td>
<td>1.31</td>
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<td>Total</td>
<td>1,229</td>
<td>1.77</td>
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</table>

### Table 2. City of Parchment System Approximate Water Age

<table>
<thead>
<tr>
<th>Location</th>
<th>G Avenue Connection Only</th>
<th>Spanish and Virginia Connection Only</th>
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<tbody>
<tr>
<td></td>
<td>Water Age (hours)</td>
<td>Water Age (days)</td>
</tr>
<tr>
<td>City of Parchment Tank</td>
<td>671</td>
<td>28</td>
</tr>
<tr>
<td>Parchment High School</td>
<td>364</td>
<td>15</td>
</tr>
<tr>
<td>Church and Glendale</td>
<td>373</td>
<td>16</td>
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<tr>
<td>Mosel and Commerce</td>
<td>556</td>
<td>23</td>
</tr>
<tr>
<td>McKinley dead end</td>
<td>521</td>
<td>22</td>
</tr>
<tr>
<td>Collingwood and Rosedale</td>
<td>400</td>
<td>17</td>
</tr>
<tr>
<td>Solvel and Thayer dead end</td>
<td>512</td>
<td>21</td>
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Note: Water age is approximate and should be used for comparison only.
### Table 3. City of Kalamazoo System Pressure and Fire Flow

<table>
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<tr>
<th></th>
<th>System Pressure¹ (psi)</th>
<th>Available Fire Flow² (gpm)</th>
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<tbody>
<tr>
<td></td>
<td>Mt. Olivet Rd &amp; G Ave</td>
<td>Virginia Ave &amp; Spanish Rd</td>
</tr>
<tr>
<td>Existing Operations</td>
<td>54</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>1,570</td>
<td>2,450</td>
</tr>
<tr>
<td>One Connection at G Ave</td>
<td>46</td>
<td>62</td>
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<tr>
<td></td>
<td>1,560</td>
<td>2,390</td>
</tr>
<tr>
<td>One Connection at Spanish and Virginia</td>
<td>50</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>1,370</td>
<td>2,430</td>
</tr>
<tr>
<td>Both Connections</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>1,500</td>
<td>2,390</td>
</tr>
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</table>

Notes: System pressures & available fire flow are steady-state simulations for existing maximum day demand conditions.
Figure 3. City of Parchment System Average Day Demand Pressure – Haymac Drive

- G Avenue Connection Only
- Spanish Drive Connection Only
- Both Connections Open
Figure 4. City of Parchment System Average Day Demand Pressure – Spanish and Espanola
Figure 5. City of Parchment System Average Day Demand Pressure – 20th and McKinley
Figure 6. Parchment Tank Head – Average Day Demands

- G Avenue Connection Only
- Spanish & Virginia Connection Only
- Both Connections Open

Tank Overflow

Head (ft)

Time

12:00 AM 6:00 AM 12:00 PM 6:00 PM 12:00 AM
Figure 7. City of Parchment Tank Head – Maximum Day Demands

- G Avenue Connection Only
- Spanish & Virginia Connection Only
- Both Connections Open

Head (ft) vs Time:
- Tank Overflow
- Bottom of Bowl

Legend:
- G Avenue Connection Only
- Spanish & Virginia Connection Only
- Both Connections Open
Figure 11. Mount Olivet Tank Head – Average Day Demands
Appendix B
February 2019

**Notice of Public Meeting**

Lead Service Replacement

Dear Resident,

The City of Kalamazoo and the City of Parchment are committed to providing safe and reliable drinking water to all their citizens. You are receiving this notification because water records indicate that your address may have a lead water service. Because the City of Kalamazoo is proving public water service to the City of Parchment residents, work for lead water service replacements will be managed by the City of Kalamazoo.

If it is determined that your water service requires replacement, it is the intent of the project to replace your current water service with a new, copper water service. The new service would extend from the existing water main, into your home, and connect to the existing water meter. This service replacement will be done at **no cost to you.**

To promote communication, the two Cities will hold a public information meeting to present you with information on the proposed project area and to answer any questions you may have.

The public meeting will be held on Thursday, March 14, 2019 from 6-8pm at the Parchment United Methodist Church located at 225 Glendale Boulevard, Parchment, Michigan, 49004

We look forward to seeing you there.

Thank you
February 2019

Public Notice
Lead Service Replacement

There will be a public information meeting regarding lead water service replacements in the City of Parchment on Thursday, March 14, 2019 from 6-8pm at the Parchment United Methodist Church located at 225 Glendale Boulevard, Parchment, Michigan, 49004
Affidavit

STATE OF MICHIGAN
COUNTY OF Kalamazoo

Teresa Johnson, Public Services Deputy Director for the City of Kalamazoo, who is a resident of Kalamazoo County, State of Michigan, personally came and appeared before me, the undersigned Notary, and made the noted statement and Affidavit upon oath and affirmation of belief and personal knowledge that the following matters, facts, and noted items are true and correct to the best of her knowledge:

Statement:
A Legal Public Notice of meeting was placed in the Kalamazoo Gazette on February 12, 2019. The noticed meeting was regarding lead service replacements in the City of Parchment, set for Thursday, March 14, 2019 from 6-8pm, at the United Methodist Church located at 225 Glendale Boulevard, Parchment, Michigan, 49004.

Statement by: Teresa Johnson

Signed: [Signature]

Dated: 3/4/19

Notary

Subscribed and sworn to before me this 4th day of March, 2019.

[kSignature]

Notary Public

Kalamazoo County, MI

My Commission Expires: 1/30/2020
City of Kalamazoo

FY 2019 DWRF Project Plan Public Hearing

March 14, 2019

United Methodist Church, 225 Glendale Boulevard, Parchment, Michigan, 49004

The following information is required by the State of Michigan as proof of meeting attendance

<table>
<thead>
<tr>
<th>NAME</th>
<th>ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brian Vilmont</td>
<td>3060 3 Mile Rd NE, Grand Rapids, MI 49525</td>
</tr>
<tr>
<td>Wendy Burlingham</td>
<td>5040 Coopers Landing, Kalamazoo, MI 49004</td>
</tr>
<tr>
<td>Steve Skalski</td>
<td>3726 Barrington Dr, Kalamazoo, MI 49006</td>
</tr>
<tr>
<td>Vern Johnson</td>
<td>Kalamazoo County Health Department</td>
</tr>
<tr>
<td>James Baker</td>
<td>57675 N Main, Three Rivers</td>
</tr>
<tr>
<td>Bobby J. Hopewell</td>
<td>241 West South Street, Kalamazoo</td>
</tr>
<tr>
<td>Rob Britigan</td>
<td>327 Glendale Blvd, Parchment, MI 49004</td>
</tr>
<tr>
<td>Shirley Kishpaugh</td>
<td>361 Glendale</td>
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<tr>
<td>Michael A. Digon</td>
<td>344 Glendale</td>
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<td>Shirley Montgomery</td>
<td>122 Elsmere</td>
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<tr>
<td>John Griffith</td>
<td>430 Parkdale</td>
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<tr>
<td>Robin Noren</td>
<td>516 Parchment</td>
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<tr>
<td>Bev &amp; Chuck Brown</td>
<td>212 E. Glenguile</td>
</tr>
<tr>
<td>Teresa Sprague</td>
<td>317 Glendale Blvd</td>
</tr>
<tr>
<td>Paul &amp; Julie Camp</td>
<td>127 Glendale Blvd</td>
</tr>
<tr>
<td>Name</td>
<td>Address</td>
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<td>--------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Bonnie Arthur</td>
<td>2155 Riverview Pl</td>
</tr>
<tr>
<td>Cheryl &amp; Mark Jenness</td>
<td>294 Glendale</td>
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<tr>
<td>Donna Ellis</td>
<td>117 S. Orient St</td>
</tr>
<tr>
<td>Matt Early</td>
<td>408 Glendale, Parchment</td>
</tr>
<tr>
<td>Amber Adams-Fall</td>
<td>312 Groveland Ave</td>
</tr>
<tr>
<td>Nancy Taylor Lenz</td>
<td>527 Parchment</td>
</tr>
<tr>
<td>Carol Hilbaldt</td>
<td>335 E. Oak Grove</td>
</tr>
<tr>
<td>Nancy Stoddard</td>
<td>Parchment City Hall</td>
</tr>
<tr>
<td>Tom Jordan</td>
<td>904 Parchmount Ave</td>
</tr>
<tr>
<td>Suzan Dean</td>
<td>112 E Oak Grove</td>
</tr>
<tr>
<td>Stephanie G. Grathwol</td>
<td>227 Maple St</td>
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<tr>
<td>Richard Bogren</td>
<td>318 Parchmount</td>
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<tr>
<td>Kim Gheen</td>
<td>267 Parchmount</td>
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<tr>
<td>Jean Harden</td>
<td>511 Park Ave</td>
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<tr>
<td>Denny &amp; Shauna Collison</td>
<td>121 Elsmere</td>
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<tr>
<td>David Janz</td>
<td>504 N. Orient</td>
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<tr>
<td>Ashlee Sowles</td>
<td>519 Vales</td>
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<td>Rob Britigan</td>
<td>327 Glendale Blvd</td>
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<tr>
<td>Karen Martin-Hale</td>
<td>286 Glendale, 350 Glendale</td>
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<tr>
<td>Robert Fales</td>
<td>220 Sanford</td>
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<tr>
<td>Deborah Jackson</td>
<td>263 Oak Grove</td>
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<td>Kaitt Linders</td>
<td>505 Glendale Blvd</td>
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<td>Kathryn Crawford</td>
<td>609 Glendale Blvd</td>
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<tr>
<td>-----------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Andrew Knight</td>
<td>PUMC Volunteer</td>
</tr>
</tbody>
</table>


A. Purpose and Alternatives Analysis including Cost and Effectiveness

<table>
<thead>
<tr>
<th>Project Need and Eligibility (identify problems, NOT the project to be constructed)</th>
<th>Protection of Public Health and the Environment</th>
<th>Removal of Lead Service Pipes in Water Systems (DWRF only)</th>
<th>Public Information and Education</th>
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<td>☑ REQUIRED FOR ALL</td>
<td>☑ REQUIRED FOR ALL</td>
<td>☑ REQUIRED FOR ALL</td>
<td>☑ REQUIRED FOR ALL</td>
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<tr>
<td>Existing Facilities (only as relevant to proposed project)</td>
<td>Compliance Violation, Enforcement Action, or Related Concerns</td>
<td>Alternatives: Option to optimize performance and improve operation and maintenance</td>
<td>Alternatives: Facility Regionalization / Coordination with Regional Planning Agencies</td>
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<tr>
<td>☑ REQUIRED FOR ALL</td>
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</tbody>
</table>

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<table>
<thead>
<tr>
<th>Comparative &quot;Cost and effectiveness&quot; of Feasible Alternatives, processes, materials, techniques, and technologies</th>
<th>Comparative non-monetary analysis of Feasible Alternatives (environmental, operational, other)</th>
<th>Financial, legal, institutional, managerial, social, or other community considerations impacting planning analysis</th>
<th>Enviro-Topographical-Geographical Constraints / Constructability concerns (e.g., poor soils, steep slopes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA REQUIRED FOR ALL This checkbox satisfies the USEPA requirement</td>
<td>NA REQUIRED FOR ALL</td>
<td>NA REQUIRED FOR ALL</td>
<td>Yes No NA</td>
</tr>
<tr>
<td>Alternative Facility Locations or Pipe Routings Yes No NA</td>
<td>CSO separation or system upgrades (SRF only) Yes No NA</td>
<td>Structural Integrity PACP/MACP (SRF only) Yes No NA</td>
<td>Reduction of excessive infiltration and inflow (SRF only) Yes No NA</td>
</tr>
<tr>
<td>Water / Wastewater Pretreatment requirements Yes No NA</td>
<td>Other Planning Elements Relevant to Project Analysis: Changes to Land Use, Changes to Capacity, Long-Term Sustainability, Climate Resilience, Facility Security, Phasing of Construction, Geotechnical-Hydrogeological-Biological-Tree Survey, etc (please identify) Yes No NA</td>
<td>Integrated Asset Management Planning Principles and Practices, including coordinated construction (water, sanitary, storm, transportation) Yes No NA</td>
<td>Planning consideration of operational impacts to downstream processes, e.g., WTP or WWTP discharges, mgmt and disposal of spent filters, mgmt and disposal of sludges &amp; other treatment residuals, etc. Yes No NA</td>
</tr>
<tr>
<td>Green Infrastructure for stormwater / Energy-water-wastewater conservation or resource recovery (USEPA Green Project Reserve) / Alternative or innovative technologies Yes No NA</td>
<td>Planning consideration of construction and operational impacts on water levels in streams, rivers, and groundwater aquifers (e.g., major dewatering, large water withdrawals) Yes No NA</td>
<td>Description of Selected Alternative (the project to be constructed) REQUIRED FOR ALL</td>
<td>User Impacts, Affordability, Disadvantaged Community, Environmental Justice REQUIRED FOR ALL</td>
</tr>
<tr>
<td>DOCUMENTS INCORPORATED BY REFERENCE AND/OR SUBMITTED IN LIEU (CIRCLE AS APPROPRIATE)</td>
<td></td>
<td></td>
<td>Eligibility, construction schedule, and project delivery considerations (e.g., ineligible components, contracting method, project phasing or segmenting, other funding sources) REQUIRED FOR ALL</td>
</tr>
<tr>
<td>USDA-RD Preliminary Engineering Report &amp; Enviro Review SSES (SRF only) I/I Study (SRF only) PACP/MACP/NASSCO Report AMP CIP Basis of Design Geotechnical-Hydrogeological-Biological-Tree Survey Environmental Assessment Report Watershed Management Plan Master Plan Compliance Documents (letters, ACO, LTCAP, permit schedule, DCA, other - please specify) Water Reliability Study (DWRF only) Sanitary Survey (DWRF only) SWPP (DWRF only) Symposia/Workshop Findings Engineering Proposal Rate Study Existing Permit Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applicant Comments (attach additional page if necessary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDEQ Reviewer Comments (attach additional page if necessary)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Continued on Page 3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### B. Environmental Preview / Review (NEPA-Like) and Useful Life Analysis

<table>
<thead>
<tr>
<th>SHPO: Archeo-Histor-Cultural LETTERS SENT, REQUIRED FOR ALL</th>
<th>THPO: Tribal LETTERS SENT, REQUIRED FOR ALL</th>
<th>Protected Plants and Animals (Endangered-Threatened) USFWS/MNFI Yes</th>
<th>Protected or Important Habitats (Including Trees) Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floodplain Impacts and/or Permit Yes</td>
<td>Wetlands Impacts and/or Permit Yes</td>
<td>Inland Lakes &amp; Streams Impacts and/or Permit Yes</td>
<td>Airspace and Airports Yes</td>
</tr>
<tr>
<td>Soil Erosion and Sedimentation and/or Permit Yes</td>
<td>Construction Storm Water Permit, Storm Water Discharge Permit Yes</td>
<td>Great Lakes Coastal Zone and related (Shorelands, Sand Dunes, Submerged Lands, etc) and/or Permit Yes</td>
<td>Wild, Scenic and Natural Rivers / National Natural Landmarks / Farmland Preservation Yes</td>
</tr>
<tr>
<td>Air Quality (beyond temporary construction) Yes</td>
<td>Water or Wastewater Facility NPDES Discharge Permit (New or Modified) Yes</td>
<td>Other permits anticipated for water-wells, roads, buildings, local health dept, lagoon berm, etc (please identify) Yes</td>
<td><strong>USEFUL LIFE ANALYSIS (SRF ONLY)</strong> This checkbox satisfies the USEPA requirement</td>
</tr>
</tbody>
</table>

**Applicant Comments (attach additional page if necessary)**

Lead service line replacement will be performed by excavating at the water main for new taps, excavating for new curb boxes, and trenchless installation for the remaining portions of a service. All excavation is planned to be in the public right-of-way. New water meters are also typically installed.

**MDEQ Reviewer Comments (attach additional page if necessary)**

---

**APPLICANT CERTIFICATION** (Please print or type)

I certify that all the above-referenced planning requirements Pages 1-3 have been considered, including the environmental preview, and including additional planning elements where relevant and applicable to the proposed project.

Name of Professional Engineer  **Brian G. Vilmont, P.E.**
Signature of Professional Engineer  **[Signature]** Date  **3/14/19**

Name of Authorized Representative  **James Baker, P.E.**
Title of Authorized Representative  **City Engineer**
Signature of Authorized Representative  **[Signature]** Date  **3/14/19**
MDEQ Review  (attach existing May 1/July 1 Screening checklist until Rules / Law are amended)

I certify that I have completed a thorough review of the above-referenced proposed SRF/DWRF loan project, using steps consistent with the long-established State Environmental Review Process and associated historical and recent guidance documents.

Date of PAN Screening Review _________

Name of Reviewer ____________________

More Info Needed? Y / N

Preliminary Tier  1 - 2 - 3

Approve for Initial PPL? Y / N

End  Draft 5 January 2018  CJC
Rev. Draft 30 Nov 2018 CJC

Rev. Draft 16 Jan 2019 CJC (added the PM certification on Page 4)
Letter of Transmittal

To: State Historic Preservation Office
   Cultural Resources Management and Planning Section
   735 East Michigan Avenue
   P.O. Box 30044
   Lansing, MI 48909

From: Ariana Jeske

Date: March 4, 2019

Project #: 2180550

Re: City of Parchment Lead Service Line Replacements.

We are enclosing the following:

<table>
<thead>
<tr>
<th>Copies</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Section 106 Review Application</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>Project Area Map</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>Project Area Photos</td>
</tr>
</tbody>
</table>

These are transmitted: ☒ for approval  ☐ for your use  ☐ _______________________

Remarks:

Please find attached the Section 106 Application for your review and approval. Call with any questions at (616)364.8491.

Any electronic media (computer disks) that may accompany this transmittal are only for the convenience of the recipient. Any conclusions or information obtained or derived from the data on the electronic media will be at the user’s sole risk. Prein&Newhof’s responsibility is limited to only the printed copies (also known as hard copies) that are delivered pursuant to the service under the contract with the client.

Signed: Ariana Jeske

cc:
February 26, 2019

Marcus Winchester, THPO
Pokagon Band of Potawatomi
58260 Sink Road
Dowagiac, MI 49047 - Sent by email

RE: Notice and Opportunity to Comment
Lead Service Line Replacement
City of Parchment

Dear Mr. Winchester:

Prein&Newhof, working on behalf of the City of Kalamazoo, public water utility owner for the City of Parchment, is preparing an application to fund improvements for lead service line replacements in the City of Parchment.

The proposed work consists of removal of existing lead service lines to buildings and replacement with new copper water service lines.

The project is located in the City of Parchment, Kalamazoo County, Town 002S, Range 011W, and Sections 2 and 3. Please refer to actual work areas/locations in actual map(s). Area slated for replacement are shaded in red and yellow.

This notice and opportunity to comment is being sent to you to fulfill Section 106 of the National Historic Preservation Act review process, which requires a federal agency or applicant to consult with THPOs and federally recognized Indian tribes. The purpose of this notice is to give you an opportunity to have your interests and concerns considered. Should you have any comments on potential impacts to known religious and/or culturally significant properties in the area of the proposed project, please provide them to us within 30 days of this notice.

Sincerely,

Prein&Newhof

Brian Vilmont, P.E.

BV/ajj

Enclosure(s): Project Area Map
3/6/2019

Ariana Jeske, P.E., PTOE
Prein&Newhof
3355 Evergreen Drive NE
Grand Rapids, MI 49525
Phone: 616-364-8491
Email: AJeske@preinnewhof.com

City of Parchment Lead Water Service Line Replacement Project Notice

Dear Ariana:

Migwetth for contacting me regarding these projects. As THPO, I am responsible for handling Section 106 Consultations on behalf of the tribe. I am writing to inform you that after reviewing the details for the project referenced above, I have made the determination that there will be No Historic Properties in Area of Potential Effects (APE) significant to the Pokagon Band of Potawatomi Indians. However, if any archaeological resources are uncovered during this undertaking, please stop work and contact me immediately. Should you have any other questions, please don't hesitate to contact me at your earliest convenience.

Sincerely,

Matthew J.N. Bussler
Tribal Historic Preservation Officer
Pokagon Band of Potawatomi Indians
Office: (269) 462-4316
Cell: (269) 519-0838
Matthew.Bussler@Pokagonband-nsn.gov

A proud, compassionate people committed to strengthening our sovereign nation.
A progressive community focused on culture and the most innovative opportunities for all of our citizens.
February 26, 2019

Heather Bush  
Match-e-be-nash-shee-wish Gun Lake Band of Potawatomi Indians  
2872 Mission Drive  
Shelbyville, MI 49344 - Sent by email

RE: Notice and Opportunity to Comment  
Lead Service Line Replacement  
City of Parchment

Dear Ms. Bush:

Prein&Newhof, working on behalf of the City of Kalamazoo, public water utility owner for the City of Parchment, is preparing an application to fund improvements for lead service line replacements in the City of Parchment.

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Sincerely,

Prein&Newhof

Brian Vilmont, P.E.

BV/ajj

Enclosure(s): Project Area Map
February 26, 2019

Earl Meshigaud  
Hannahville Potawatomi Indian Community 
N-14911 Hannahville B-1 Road 
Wilson, MI 49896  - Sent by email

RE: Notice and Opportunity to Comment  
Lead Service Line Replacement  
City of Parchment

Dear Mr. Meshigaud:

Prein&Newhof, working on behalf of the City of Kalamazoo, public water utility owner for the City of Parchment, is preparing an application to fund improvements for lead service line replacements in the City of Parchment.

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Sincerely,

Prein&Newhof

Brian Vilmont, P.E.
BV/ajj

Enclosure(s): Project Area Map
February 26, 2019

Jay Sam, Director
Little River Band of Ottawa Indians
2608 Governmental Center Drive
Manistee, MI 49660  - Sent by email

RE: Notice and Opportunity to Comment
    Lead Service Line Replacement
    City of Parchment

Dear Mr. Sam:

Prein&Newhof, working on behalf of the City of Kalamazoo, public water utility owner for the City of Parchment, is preparing an application to fund improvements for lead service line replacements in the City of Parchment.

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Sincerely,

Prein&Newhof

Brian Vilmont, P.E.
BV/ajj

Enclosure(s): Project Area Map
February 26, 2019

Mon-ee Zapata, Cultural Specialist  
Nottawaseppi Band of Huron Potawatomi  
1485 Mno-Bmadzewen Way  
Fulton, MI 49052  - Sent by email

RE: Notice and Opportunity to Comment  
Lead Service Line Replacement  
City of Parchment

Dear Ms. Zapata:

Prein&Newhof, working on behalf of the City of Kalamazoo, public water utility owner for the City of Parchment, is preparing an application to fund improvements for lead service line replacements in the City of Parchment.

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Sincerely,

Prein&Newhof

Brian Vilmont, P.E.

BV/ajj

Enclosure(s): Project Area Map