



## INFRASTRUCTURE SERVICES

### *Staff Report*

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REPORT NO: IS-2025-02

TO: Council

SUBMITTED BY: Jeff Molenhuis, P.Eng., Director of Infrastructure Services

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REVIEWED BY: Greg Clark, Acting Chief Administrative Officer

DATE: 2025-01-27

SUBJECT: **Knipfel Private DWS System – Design Approval**

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#### RECOMMENDATION:

THAT Council directs staff to proceed with the detailed design for replacing the Knipfel Private Distribution Water System (DWS) with a new municipal watermain and services, in accordance with municipal and provincial standards. This includes the design for service connections to all existing users and properties fronting the proposed watermain layout in northeast Petersburg, Notre Dame Drive, and Snyder's Road East.

#### SUMMARY:

This report outlines the next steps for the detailed design to replace the Knipfel Private Distribution Water System (DWS) with a municipal watermain that meets municipal and provincial standards. On January 6th, Committee of the Whole received report IS-2025-01 - Knipfel Private DWS System – Project Update. Council asked for further information as follow-up reporting to the Committee recommendation. Two design options will be considered in the detailed design process, for watermain replacement only, and watermain replacement with semi-urbanization of local roads. These options will be brought back to the public in future community meetings.

Ownership of the Knipfel Private DWS will be transitioning to the Township, and regulatory compliance efforts continue. A public consultation plan will guide community engagement throughout the design process. Regular updates will be provided to Council at key milestones.

### BACKGROUND:

During the January 6th Committee Meeting, staff provided Council with a project update, which included MTE Consultants' Knipfel Private Water Distribution System Assessment. As part of this update, staff recommended proceeding with the detailed design to replace the Knipfel Private Distribution Water System with a new municipal watermain.

The recommendation presented to Council included the following motion:

*THAT Council directs Staff to proceed with the detailed design for replacing the Knipfel Private Distribution Water System with a new municipal watermain and services that meets current municipal and provincial design and safety standards, including design for service connections for all existing users and properties fronting the proposed watermain layout in northeast Petersburg, Notre Dame Drive, and Snyder's Road East.*

Council supported the recommendation to proceed with the design but requested that staff address additional items before granting final approval. These items include:

- A general outline of the design options to be considered including watermain only and watermain with semi-urbanization;
- Estimated costs for design, contract administration, and inspection;
- Potential EA Impacts
- Ownership Transfer
- Fragmentation
- Liability Concerns; and
- Public Engagement

Additionally, Council and meeting delegates raised several questions, including concerns about ownership transfer and the potential for system fragmentation, which staff were asked to investigate and report back on.

### REPORT:

#### **Design Options and Detailed Design**

Township staff will proceed with two design options including the watermain replacement only and watermain replacement including semi-urbanization of the roadway.

#### **Option 1: Watermain Replacement**

This option involves the total replacement of the existing water distribution system, bringing it up to Municipal and Provincial standards. It includes the installation of new water services to

each home and restoration of disturbed areas only. Roadwork and storm system repairs will be limited to areas directly affected by the watermain replacement.

#### Option 2: Watermain Replacement with Semi-Urbanization

This option includes all components of Option 1, with the addition of renewing the Township's local roads within the Deerfield Subdivision. The roads will be upgraded from a rural cross-section with roadside ditches to a semi-urban cross-section, which could incorporate concrete curbs, catch basins, storm sewers, boulevard works and/or ditching graded to drain effectively. Additionally, this option will involve full-width, full-depth asphalt replacement on the local roads, complementing the water distribution system replacement and house service upgrades.

These design options will be considered to determine the most appropriate approach based on project goals, budget, and community impact. The design work, along with tendering, contract administration, and inspection for the proposed watermain system replacement, will be carried out in the following phases:

1. **Pre-Design:** This phase includes project initiation, background review, pre-engineering surveys, and the preparation of base plans and existing conditions plans.
2. **Preliminary Design (30%):** This phase involves the creation of preliminary design drawing which would be made available for viewing by those affected through online or in-person format.
3. **Detailed Design:** This phase consists of three stages:
  - **60% Design:** Preparation of detailed drawings and specifications, along with a cost estimate. A Public Information Centre (PIC) will be held to engage the public at this stage of the design.
  - **90% Design:** Finalizing detailed drawings and specifications, and updating the cost estimate.
  - **100% Design:** Completing final drawings and specifications, and obtaining all necessary permits and approvals.
4. **Tendering:** Preparing and issuing tender documents for construction.
5. **Contract Administration and Inspection Services:** This will cover the estimated multi-week construction period to ensure proper project execution.
6. **Geotechnical Services:** Includes investigation and quality assurance/quality control (QA/QC) processes carried out before and during construction.

Cost Estimate Comparison for consulting vs in-house is as follows:

- **In-House Execution:** If the Township handles the design, tendering, contract administration, and inspection services internally, the estimated cost is \$130,000.

- Consultant Execution: If the Township hires a consultant for the same services, the estimated cost is \$300,000.
- Geotechnical Services: Estimated at \$65K in both scenarios.

By completing the work in-house, the Township would save approximately \$170,000 on design, tendering, contract administration, and inspection services. This approach leverages the expertise of the Township's skilled staff, offering a cost-effective and practical solution. It also provides for improvements to quality of service and more potential to utilize staffing in other areas of service delivery for much less of a cost and more time than consulting services provides. Additionally, it improves responsiveness and flexibility of the department.

### **Potential EA Impacts**

The Township recognizes that the implementation of the detailed design for the watermain distribution system has timing and coordination requirements with the Region of Waterloo's Class Environmental Assessment (EA) process for the Petersburg Water System supply. The EA is expected to address long-term water supply solutions and incorporate servicing for the 26 additional properties included in the design. Key considerations from the Region's timeline and process include:

- The EA is scheduled to begin in 2027, with an estimated duration of 16–18 months. Additional time may be required for necessary approvals, such as Permit to Take Water (PTTW) increases or land acquisitions, which could extend the process.
- Advancing the EA timeline would require reprioritization of the Region's capital plans, and have indicated that advancing the Petersburg EA is not feasible without significantly impacting other projects.
- Interim preparatory work is underway, including condition assessments of the reservoir, treatment building roof envelope, and well. However, the EA process itself will determine the preferred servicing solution, considering technical, environmental, social, and financial factors.

The Township will work with the Region on interim and ultimate supply servicing solutions as it relates to the distribution system and the supply system. Updates on this coordination will be provided to Council with further project reporting.

### **Ownership Transfer**

On January 15, 2024, the Township received a Notice of Intent to Issue an Order under Section 114 of the Safe Drinking Water Act, 2002, directing the Regional Municipality of Waterloo and the Township of Wilmot to take over operation of the Knipfel Well Supply Drinking Water System in Petersburg. The Notice is included as Attachment 1: *Knipfel Well Supply Notice of Intention s114 SDWA 20240115*.

The Region and Township were required to respond to this notice in writing, as outlined in subsection 114(10) of the Safe Drinking Water Act (SDWA), by February 26, 2024. On this date, the Township submitted a letter to the Ministry of the Environment, Conservation and Parks (MECP), confirming the Township's responsibility for operating the municipal water

distribution system, while the Region is responsible for the treatment and supply of water to the Township.

In its letter, the Township outlined its responsibilities under the Safe Drinking Water Act (SDWA) and related regulations:

1. **Municipal Drinking Water System:** The Township will begin operating the Knipfel DWS on May 13, 2024, as a non-municipal system, while seeking necessary permits and licenses to transition it into a municipal system. The Township will work to obtain a Drinking Water Works Permit and Drinking Water License.
2. **Evaluation of the Distribution System:** The water distribution system, built over 60 years ago, requires upgrades. The Township will assess its condition and capital needs by hiring an engineering consultant. This evaluation will guide future improvements and replacement of aging watermain.
3. **Compliance with O. Reg. 170/03:** The Township will ensure ongoing monitoring, sampling, and testing as per regulatory requirements, including:
  - Operational checks and testing (Schedule 6)
  - Chlorine residuals testing (Schedule 8)
  - Microbiological testing (Schedule 11)
  - Chemical testing (Schedule 13), including Trihalomethane and Haloacetic Acids
  - Corrective actions in the event of adverse results (Schedule 16 and 18)
4. **Qualified Operators:** The Township's certified operators will manage system maintenance, including watermain flushing and other checks.
5. **Collaboration with the Region:** The Township will collaborate with the Region of Waterloo and Knipfel Water Supply Inc. to ensure reliable operation. A joint communication team will engage residents and provide updates regarding the transition, ensuring transparency and responsiveness to inquiries.

The Township is not yet the owner of the Knipfel Well Supply Drinking Water System but is actively working with the Ministry of the Environment, Conservation and Parks (MECP) to finalize any remaining requirements for transitioning the system to municipal ownership. Currently, the Township operates the system under a Drinking Water Works Permit (DWWP) as a non-municipal, year-round drinking water system. Once the official order and Drinking Water License are issued, the Township will assume ownership and reclassify the system as a municipal drinking water system. The timing of this is unknown at this time. Additional updates on the progress will be provided as they become available.

### **Fragmentation**

On September 27, 2024, a meeting was held with representatives from the Ministry of Environment, Conservation and Parks (MECP) and the Region. During this meeting it was

clarified that, decommissioning or fragmentation is prohibited without consent from the Ministry under the Safe Drinking Water Act (SDWA). Given the potential challenges such as a buy in for community members and the minimal space within the community relating to well to well and well to septic distances, fragmentation would not be approved and as such is not considered feasible. The MECP and the Township are in agreement that a municipal drinking water system represents the most effective solution for providing a safe and reliable water source for the community, aligning with the principles of the Safe Drinking Water Act (SDWA).

### **Liability Considerations**

The decision to proceed with the design and replacement of the Knipfel Private Distribution Water System (DWS) is essential to reduce potential liabilities. Failing to address the outdated system could expose the Township to corporate liabilities, including non-compliance with the Safe Drinking Water Act (SDWA) and the Township's Quality Management System that is required for Operating Authority Licensing. The existing infrastructure does not meet current standards, which could result in legal and regulatory risks, potential fines, and enforcement actions at a corporate and staff level.

Delaying necessary upgrades could also risk public health and safety, as noted in the Notice of Intent letter. The current system may not meet demand, leading to unsafe water quality or insufficient supply. Legal action from residents or regulatory bodies could occur if the Township fails to act. Replacing the system ensures compliance with health and safety regulations, safeguarding both the Township's reputation and its ability to deliver safe drinking water to residents.

At the January 6th Committee of the Whole meeting, several questions were raised regarding ownership, compliance, liability, design, and financials. A summary of the key discussion points is provided below.

#### **1. Ownership**

- In terms of the Knipfel Private DWS, the Township serves as the operating authority and is actively pursuing the required permits and licenses to facilitate its transition to a municipal system.
- The Township holds ownership of the overall water distribution systems within the Township of Wilmot, excluding the Knipfel Private DWS, and is accountable for managing water distribution throughout the Township. The Region's responsibilities are related to the supply of water.

#### **2. Compliance**

- As the Knipfel Private DWS transitions to a municipal system, it will be subject to new parameters, including regulations, standards, and annual reporting requirements, which differ from those applicable under its previous status as a private drinking water system.
- The drinking water supplied to the community while the system was operating as a private drinking water system was deemed safe, having undergone a



regulatory process consistent with standards for non-municipally regulated drinking water.

### 3. Liability

- As previously noted, the Township is currently in a transitional phase, having been granted operational authority over the Knipfel Private DWS. While certain liabilities exist in the capacity of operators, the eventual transfer of ownership will entail additional liability responsibilities including bringing the system to municipal and provincial standards.

### 4. Design

- The detailed design of the system allows for flexibility, with the potential to adapt and adjust as additional information becomes available.
- Provided support for the Capital Project and Council's approval detailed design could commence as early as February or March and be completed before the end of 2025.

### 5. Financials

- The high-level cost estimates presented in Committee Report IS-2025-01 do not encompass Township related expenditures. These preliminary costs are intended to provide a general overview of costs per service and a more detailed analysis will be conducted if the detailed design stage is approved, allowing for a more comprehensive review of the financial implications.
- The summary of costs presented in Committee Report IS-2025-01 outline the expenditures incurred by the Township to date. These costs remain outstanding and are awaiting recovery.
- Regarding a payment plan, preliminary discussions have centered on a long-term financing option. However, specific details have not been finalized. It is anticipated that the detailed design process will yield more precise financial information, which will be presented to the community and Council for consideration if the design phase is approved.

## **Public Engagement**

The proposed public consultation process for the design includes the following steps:

1. 30% Design Available online or in-person (3-4 months into the design phase)
2. Public Information Centre (PIC): A PIC will be held at the 50% design completion stage to gather public input and feedback. (7-8 months into the design phase)
3. Committee Report (Post-PIC): Following the PIC, a report will be presented to the Committee summarizing public feedback and any adjustments made to the design. (8 months into the design phase)
4. Committee Report (90% Design): A second report will be submitted to the Committee at the 90% design completion stage. This report will include finalized design details, cost estimates, and financial recovery considerations. (9-10 months into the design phase)

5. Council Report for Approval: A final report will be presented to Council for approval of the design, financial details, and authorization to proceed with the construction and tender preparation phase. (10-12 months into the design phase)

### Engage WR

The EngageWR (<https://www.engagewr.ca/petersburg-water-system>) platform serves as the primary communication hub for the Knipfel Private DWS project. System users and members of the Petersburg community are encouraged to subscribe to the project page to stay informed about updates and related information. To facilitate this, users can access the "Stay Informed" feature located in the top-right corner of the Petersburg Water System webpage and enter their personal email address. Upon subscription, a confirmation email will be sent by EngageWR containing an activation link. Users must click the link to confirm their subscription to ensure they receive project-related notifications and updates as they are added to the EngageWR Petersburg Water System webpage. Staff are in the process of compiling an email list of contacts within the community to ensure this or another option is available.

### ALIGNMENT WITH THE TOWNSHIP OF WILMOT STRATEGIC PLAN:

This initiative supports the goals and strategies of enhancing Responsible Governance through Active Communications, Fiscal Responsibility, and Infrastructure Investments.

### FINANCIAL CONSIDERATIONS:

The estimated costs for the detailed design and related services are:

- In-House Execution: \$130,000, including design, tendering, contract administration, and inspection.
- Consultant Execution: \$300,000 for the same scope.
- Geotechnical Services: \$65,000 for both scenarios.

Note that 2025 Budget request is a portion of the in-house and geotechnical costs request as this is likely going to be drawn over 2-3 years of the full project life. Performing the work in-house saves a substantial amount, utilizing Township expertise for a cost-effective solution.

Watermain replacement costs will depend on the selected design option (watermain-only or semi-urbanization) and be refined during detailed design.

The Region of Waterloo's Class EA consulting costs are estimated at \$300,000.

### ATTACHMENTS:

Attachment 1: Knipfel Well Supply Notice of Intention s114 SDWA 20240115

Attachment 2: October 2024 PIC Township Information Boards