STATE OF NEW HAMPSHIRE
BEFORE THE
NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION

RE: PENNICHUCK WATER WORKS, INC.
DW 23- xxx

2023 QUALIFIED CAPITAL PROJECT ADJUSTMENT CHARGE FILING

DIRECT TESTIMONY
OF
John J. Boisvert

February 13, 2023

Professional and Educational Background

Q. What is your name and what is your position with Pennichuck Water Works, Inc.?

A. My name is John J. Boisvert. I am the Chief Engineer of Pennichuck Water Works, Inc. (the "Company" or "PWW"). I have worked for the Company since February 1, 2006. I am a licensed professional engineer in New Hampshire and Maine.

Q. Please describe your educational background.

A. I have a Bachelor of Science degree and a Master of Science degree in Civil Engineering from the University of New Hampshire in Durham, New Hampshire. I also have a Master's degree in Environmental Law and Policy from Vermont Law School in South Royalton, Vermont.

Q. Please describe your professional background.

A. Prior to joining the Company, I served as a Team Leader for Weston & Sampson Engineers of Portsmouth, New Hampshire in their Water Practices Group from 2000 to 2006. Prior to Weston & Sampson I was employed by the Layne Christensen Company of Shawnee Mission, Kansas as Regional Manager for their Geosciences Division in Dracut, Massachusetts from 1994 to 2000. I completed graduate school in 1992 and was employed by Hoyle, Tanner, & Associates of Manchester, New Hampshire as a Project Engineer from 1992 to

1994. Prior to entering full time graduate programs at the University of New Hampshire and Vermont Law School I was employed by Civil Consultants of South Berwick, Maine as a Project Engineer from 1986 to 1989 and by Underwood Engineers of Portsmouth, New Hampshire as a project Engineer from 1985 to 1986.

Q. What are your responsibilities as Chief Engineer of the Company?

A. As Chief Engineer, I manage and oversee the Company's Engineering Department. I lead the Company's Asset Management program. As head of the Engineering Department, I am responsible for the planning, design, permitting, construction, and startup of major capital projects, including pipelines, reservoirs/dams, building structures, pumping facilities, treatment facilities, and groundwater supplies. The Engineering Department staff provides regular technical assistance to the Company's Water Supply Department, Distribution Department, Customer Service Department, and Senior Management.

Q. What is the purpose of your testimony?

A. My testimony will present the major Qualified Capital Projects initiated and completed in 2022 as well as providing details of the major capital projects planned and budgeted for 2023-2025 as part of the Company's 2023 Qualified Capital Project Adjustment Charge ("QCPAC") filing. My testimony supports, and is in addition to, testimony being provided by the Company's Chief Operating Officer Donald L. Ware for this docket. Detailed project listings mentioned in this

testimony are detailed in Exhibit DLW-1, Pages 1-5 including with Mr. Ware's testimony.

Q. What types of projects can be described as "major capital projects"?

A. Major capital projects require significant capital investment and are approved annually in the Company's capital budget by the Company's Board of Directors. Projects are associated with dams, treatment facilities, pumping facilities, storage tanks, water main replacements, valve and hydrant replacements, building facility improvements and refurbishments, as well as non-structural efforts to improve Company performance, such as Asset Management. These generally include:

- The replacement of infrastructure that has: (1) reached or is reaching the end of its useful life, (2) does not achieve the level of service required of it (water quality, capacity, and efficiency), or (3) the Company's ability to properly maintain it (outdated/lack of repair parts, etc.) is either impractical or more costly to repair or rehabilitate than replacing it.
- Infrastructure upgrades to improve system performance.
- Investments to ensure compliance with the primary and secondary Safe Drinking Water Act ("SDWA") standards.
- Engineering studies and evaluations to assess infrastructure and system performance to aid in planning future capital investment needs.
- The implementation of processes and systems such as Asset Management, which incorporates/integrates Geographical Information Systems (GIS), Computerized Management and Maintenance System

(CMMS- Cityworks as of 12/31/2020), electronic time and record keeping, as well as inventory management, allowing the Company to have access to the data and information needed to make cost effective, immediate and long-term operations and planning decisions.

Q. **What is the process that the Company employs and what are the factors the Company considers when developing the capital budget for water main replacements?**

The Company considers several factors in developing a capital budget for water main rehabilitation, replacement, and/or new construction. The Company has completed the first phase of its Asset Management Initiative. The Company has inventoried its pipeline assets and documented them within its GIS (Geographical Information System) database. An initial condition assessment and a preliminary evaluation of the consequence of failure of certain water main assets has been completed. This application and effort have thus far served as an effective tool to determine which assets are most critical and should be evaluated in more detail for possible inclusion in the current 2023 – 2025 capital budgets/forecasts. With the transition to a new Computerized Management and Maintenance software, the Asset Management Initiative continues to be expanded to: (1) look more closely at specific assets to identify the risk of failure, (2) determine if there is a structural failure (break), or (3) the asset is not attaining the required level of service (water quality, flow, or pressure). The usage of the Asset Management system in this regard has provided the ability to facilitate more predictive

guidance in planning for and implementing future capital expenditures. This approach is ongoing and being refined or enhanced as more data and information on the Company's assets becomes available. This Asset Management approach considers the following for all assets including:

- Water main break/failure history;
- Water quality problems;
- Fire protection flows;
- The proximity of and support provided to key critical customers (public safety, government, hospitals, etc.);
- Coordination with gas company (or other buried utility assets) replacement projects;
- Geographic grouping of streets where mains are to be replaced/rehabilitated for improved efficiency by aggregating main replacement work in close proximity to each other;
- The opportunity to take advantage of efficiencies gained from coordinating with the paving, storm water and sewer projects of cities and towns served by the Company, in the replacement of water mains where substandard plastic or aging unlined cast iron water mains are present. There are cost savings in pavement repair and traffic control costs associated with completing projects while the municipality or other utility company is also working on a street.
- Industry guidelines of the American Water Works Association for the replacement of water mains using an average life expectancy for water mains of 100 years, absent specific information on a particular asset. The Company

considers this rate to be a reasonable basis of main replacement planning and determination, until such time that the Asset Management System will better and more fully allow for a more system/asset specific assessment to be performed. In terms of targeted water mains to be considered and evaluated, the Company, based on GIS assets, still has approximately: (1) 31.9 miles of unlined cast iron water main in service, most of which is over 100 years old and was installed beginning in 1853, (2) about 38.3 miles of Asbestos cement water main (most of which was installed between the mid 1950's and 1960's), (3) 0.6 miles of small diameter steel water main installed primarily in the 1950's, and (4) 0.6 miles of substandard plastic water mains, and (5) 3.35 miles of unknown material that was installed by the original developer in the 1970's and 1980's (prior to the NHDES setting minimum standards on water main materials). Replacement of aging and substandard infrastructure will continue to be a major driver of the Company's water main replacement for the foreseeable future.

Q. What are the major projects the Company started in 2021 that the Company completed as part of the 2022 Capital Budget?

A. Two projects, the Kessler Farm Tank Replacement and the Coburn Woods Water Main Replacement had delayed starts due to schedule impediments directly or indirectly impacted by Covid-19 construction availability and delays, supply chain disruption, protocols, and policies. The Kessler Farm Tank (W/O# 2101759) was bid in 2020 and construction started in March 2021. The tank was

used and useful by the end of 2021, but certain external and cosmetic components was not finished until the second quarter of 2022, including final site restoration and concrete finishing/coloring of the external tank.

The Coburn Woods project mobilized in November 2020. Some construction was completed but winter set in halting work. Construction resumed in April 2021 with approximately $755,000 worth of water main replacement (954 LF), services (35 totaling 1,200 LF), and valves (9) going used and useful in 2021. The winter of 2021-2022 halted additional work. In 2022, work was initiated again (W/O #'s 2200500) to complete the remaining phase 1 valve installations that will eventually facilitate the next phase of water main replacement planned for 2024 and 2025. The value of the 2022 work is $183,474.

The Company did not have water main replacement/additions in 2022 that began and went used and useful in 2021.

Q. What were the major water main projects completed in 2022?

A. Exhibit DLW 1-5, Page 2 lines 41-51 identify eleven street locations where aging unlined cast iron and small diameter steel/galvanized water main was replaced driven by Asset Management. This work totaled $1,742,789 in 2022. In addition, Exhibit DLW 1-5, Page 2 lists Garden Street (line 55 at $49,536).

In 2022, there were several water main design initiatives on projects that would be bid in 2022 or early in 2023 for construction in 2023. The design process for 2022 water main replacement was moved up in response to supply chain concerns over the long lead times (40+ weeks in some cases) on water main and water service materials. By designing the 2023 projects in 2022, projects could be bid in late 2022 or early in 2023 such that contractors could be engaged early in order to receive project materials in time to complete projects, or project section so they could be in service by December 31, 2023.

Q. Please identify and describe water main projects budgeted or planned for in 2023-2025.

A. Proposed water main construction and corresponding water main trench restoration is presented, by year, below. The majority of the water main being replaced is in Nashua and is near or greater than 100 years old. The pipe is generally 2-inch through 8-inch diameter unlined cast iron pipe (CI). Most of this pipe suffers from internal corrosion (tuberculation) resulting in substandard fire flows. This internal corrosion also increases the risk of the delivery of substandard quality water to our customers, including bacteria (from the potential loss of chlorine residual) and colored water from flow fluctuation or pipe disturbance. Some of the work in 2022-2024 may be done in conjunction with sewer improvement projects by the City of Nashua. The City schedules and completes their work annually based upon a July 1st – June 30th fiscal year and does not finalize and provide the Company with their capital project plans until

March or April each year. And finally, a substantial amount of water main construction will be the replacement of small diameter steel and galvanized steel water mains. These small diameter steel mains are suffering from both internal and external corrosion and are very brittle. As such they lack flow capacity and they do not withstand heavy vibration from paving operations and nearby excavation of other buried utilities.

Budgeted 2023 Water Main Replacements/Additions

Water main work is anticipated within the City of Nashua and the Town of Amherst as part of ongoing replacement of aging infrastructure. The projects total approximately $6,134,650 in reinvestment. Much of this effort will be associated/coordinated with other utility work and road reconstruction.

Specific Projects are as follows:

- Swan Street: Replacing 160 LF of 1953 2" Steel main with 4" PVC
- Chapman Street: Replacing 160 LF of 1948 1.25" Steel main with 4" PVC
- Cote Avenue: Replacing 470 LF of 1938 8" CI main with 8" DI
- Savoy Street: Replacing 140 LF of 1947 1.25" Steel main with 6" DI
- Walnut Street: Replacing 1450 LF of 1888-1951 6" CI main with 12" DI
- Salem Street: Replacing 1450 LF of 1888-1927 4" & 6" CI main with 6" DI

- Dawn Street: Replacing 450 LF of 1954 1.5" Steel & 2" Steel main with 4" PVC
- Amory Street: Replacing 570 LF of 1887 8" CI main with 12" DI
- Union Street: Replacing 520 LF of 1909-1978 1.25" Steel& 4" CI main with 12" DI
- Berkeley Street: Replacing 3080 LF of 1888-1912 6" CI main with 8" DI
- Temple Street: Replacing 975 LF of 1888 8" CI main with 12" DI
- Raymond Street: Replacing 2300 LF of 1887 8" CI main with 8" DI
- Hanover Street: Replacing 840 LF of 1888 4" CI main with 8" DI
- Blossom Street: Replacing 2395 LF of 1893-1916 4" & 6" CI main with 8" DI
- Jones Court: Replacing 180 LF of 1.5 inch Galvanized Steel with 4inch PVC
- Troy Street: Abandon Replacing 290 LF of 1.5" Steel & 2" Steel main
- Broadview Avenue: Replacing 435 feet of 1.5 Galvanized Steel & 8 inch DI with 4 inch PVC & 8 inch DI
- Ritter Street: Replacing 210 LF of 1893 6" CI main with 8" DI
- Dexter Street: Replacing 1885 LF of 1941-1949 6" & 8" CI main with 8" DI
- Crown Street: Replacing 225 LF of 1901 6" CI main with 8" DI
- Hobbs Avenue: Replacing 490 LF of 1906 6" CI main with 8" DI

- Elm Street: Replacing 330 LF of 1892 6" CI main with 8" DI
- Newbury Street: Replacing 2250 LF of 1888-1940 6" & 8" CI main with 8" DI

In 2023, there will also be pavement restoration costs of approximately $12,000 for water mains installed in 2022 and approximately $131,000 for design of water main replacement projects to be constructed in 2024.

Planned 2024 Water Main Replacements/Additions

Water main work is anticipated within the City of Nashua and the Town of Amherst as part of ongoing replacement of aging infrastructure. Approximately 6,050 LF will be associated with aging infrastructure replacement at a budget of approximately $3,180,250. The specific locations include:

- Ferson Street: Replacing 430 LF of 1931-1938 8" CI main with 12" DI
- West Otterson Street: Replacing 260 LF of 1936 8" CI main with 8" DI
- Thomas Street: Replacing 420 LF of 1908-1926 6" CI main with 6" DI
- Sawyer Street: Replacing 1620 LF of 1896-1907 6" CI main with 8" DI
- Balcom Street: Replacing 1225 LF of 1911-1923 8" CI main with 8" DI
- Crown Street: Replacing 225 LF of 1901 6" CI main with 8" DI
- Palm Street: Replacing 420 LF of 1890 4" CI main with 6" DI

- McKean Street: Replacing 1690 LF of 1888 6" CI main with 8" DI

In 2024, there will also be pavement restoration costs of approximately $1,783,950 for water mains installed in 2023 and approximately $107,610 for design of water main replacement projects to be constructed in 2025.

Planned 2025 Water Main Replacements/Additions

Water main work is anticipated within the City of Nashua and the Town of Amherst as part of ongoing replacement of aging infrastructure. Water main replacements total approximately 9,160 LF for 2024 at a budget of $2,346,000 and includes the following locations/categories:

- Reed Court: Replacing 170 LF of 1968 1" Copper main with 2" HDPE
- Atwood Court: Replacing 130 LF of 1950 2" Steel main with 2" HDPE
- Lucier Street: Replacing 340 LF of 1928-1947 1.5" Steel & 4" CI main with 8" DI
- Atherton Avenue: Replacing 200 LF of 1959 2" Steel main with 4" PVC
- Riverview Street: Replacing 190 LF of 1951 2" Steel main with 4" PVC
- Foster Court: Replacing 165 LF of 1963 1" Copper main with 2" HDPE
- Highland Place: Replacing 230 LF of 1924 2" Galvanized Steel main with 4" PVC
- Palm Street: Replacing 420 LF of 1890 4" CI main with 6" DI

- Long Avenue: Installing 115 LF of new 8" DI to complete loop
- Long Avenue: Replacing 65 LF of 1939 1.25" Steel main with 2" HDPE
- Short Ave: Replacing 210 LF of 1926 6" CI main with 8" DI
- 2nd Street: Replacing 235 LF of 1961 Steel and 2005 2" Copper main with 4" PVC
- Yvonne Street: Replacing 200 LF of 1929 1.25" Steel main with 2" HDPE
- Daniels Street: Replacing 205 LF of 1955 1.5" Steel main with 2" HDPE
- George Street: Replacing 195 LF of 1948 2" CI main with 2" HDPE
- Tetreau Street: Replacing 450 LF of 1957 1.25" Galvanized Steel main with 2" HDPE
- Notre Dame Street: Replacing 385 LF of 1926 & 1950 1.5" Steel & 2" Steel main with 2" HDPE
- Haines Street: Abandoning 75 LF of 1934 1.5" Steel main
- Santerre Street: Replacing 530 LF of 1961 &1962 2" Steel main with 4" PVC
- Lakeside Avenue: Replacing 266 LF of 1949 1.25" Steel main with 4" PVC
- St. Lazare Street: Replacing 405 LF of 1955-1959 1.5" Steel and 2" Steel main with 4" PVC

- Spaulding Avenue: Replacing 435 LF of 1924-1940 1.25" Steel, 2" Steel, and 6" CI main with 4" PVC
- Arlington Avenue: Replacing 265 LF of 1920 & 1926 2" Galvanized Steel and 4" CI main with 4" PVC
- Auburn Street: Replacing 1190 LF of 1882-1887 4" and 8" CI main with 8" DI
- Eaton Street: Replacing 490 LF of 1912 6" CI main with 12" DI
- North 2nd Street: Replacing 140 LF of 1919 6" CI main with 4" PVC
- Alstead Avenue: Replacing 320 LF of 1920 4" CI main with 4" PVC
- Bordeaux Street: Replacing 275 LF of 1960 2" Steel main with 4" PVC
- King Street: Replacing 865 LF of 1923 & 1957 6" CI main with 6" DI

In 2025, there will also be pavement restoration costs of approximately $1,100,850 for water mains installed in 2024 and approximately $180,000 for the design of water main replacement projects to be constructed in 2026.

Q. Your testimony states that water main replacement projects may vary each year due to balancing the investment in water main replacements with other major capital projects. What are those other types of projects?

A. The Company has typically targeted overall capital investment (reinvestment) between $8 million-$12 million per year. The Company is limited to investing no more than around $11.5 million per year in total capital expenditures due to the limits on the maximum amount that it can fund annually through its Fixed Asset

Line of Credit ("FALOC") during construction. The FALOC is subsequently re-financed annually to long-term debt by issuing bonds using the New Hampshire Business Finance Authority as its conduit to the tax-exempt and taxable bond markets.

These "other major capital project" investments are associated with vertical assets, including storage tanks, pumping stations, treatment facilities, source of supply, and process related improvements (SCADA, Asset Management, etc.). In some years there may be more need for horizontal asset investment (main replacements) rather than vertical assets. In other years the opposite may be true. The balancing of these focused objectives is necessary to maintain a balance between timely replacement of aging infrastructure, while also keeping water rates from increasing too quickly, in order to fund those incurred costs.

Q. What were the other major projects completed in 2022?

A. The following projects are representative of the major capital work completed in 2022.

<u>Meter Radio Replacement Year 2 (W/O# 2200381):</u> The Company replaced 2,142 radios in 2022 at a cost of $236,311.

<u>Kessler Farm Tank (W/O# 2101759 at a cost of $200,776):</u> The Kessler Farm Tank was substantially complete, and used and useful in December 2021. There

was additional carry over work in 2022 for final site restoration and exterior concrete finishing that could not be completed in 2021 due to winter conditions.

CMMS Cityworks PLL Implementation (W/O# 2201250 at a cost of $10,139): This effort was required carry over work from 2021. Cityworks PLL is primarily an engineering function/application (accessed by other Company departments) used to initiate, track progress, document, and manage the following:

- New service applications
- Main extension agreements and main extension construction
- Capital projects (water main replacement, treatment/booster stations, and tanks for example)

Cityworks PLL allows for the transfer of electronic documents such as plans, specifications, contract documents, test results and material shop drawings between the Company, engineers, contractors, and customers. The process enables project documents to be attached and save as part of the work order file within Cityworks. This allows all stakeholders within the Company to review project status and project materials when access to project information is needed, in a more efficient and timely manner.

Carbon Filter Media Replacement (W/O# 2202953 at a cost of $1,432,922): In order to ensure compliance with the NHDES standard for perfluorooctanoic acid (PFOA) of 12 parts per trillion (ppt), the Company replaced the granular activated

carbon filter media in 8 or its 12 filter beds due to breakthrough of PFOA in the filter effluent.

Bowers Dam and Spillway Final Design (W/O# 2201369 at a cost of $120,140): The final design of improvements to the Bowers Dam and Spillway was completed including plans and specifications that were ready to be bid. Project bidding and construction has been delayed due to the long lead time for the delivery of the spillway gate and structure as well as the availability of $700,000 of Federal Grant funds which will cover about 25% of the project costs. The Federal funds are not available until the middle 2023 not leaving time in 2023 to secure a contractor and complete the work by year end. No construction can start until those funds are secured therefore this project has been deferred to 2024 in order to be constructed within a single year.

Engineering Studies (W/O# 2205826 at a cost of $113,182)- Chemical Feed and Storage: The project is an engineering evaluation of existing chemical feed and storage system at the Company's main water treatment facility in Nashua, NH. The existing facilities were placed into service prior to 2009. Since 2009, the Company has seen an increase in treatment chemical use due to changing water quality due to environmental/climate conditions as well as a shift from Pennichuck Brook to the Merrimack River as the primary source of supply due to elevated levels of PFOA above the NHDES standard. The Company engaged the consulting firm of CDM Smith to evaluate and make recommendations, if any,

for the Company to follow to ensure that chemical feed and storage facilities are adequate and in compliance with NHDES regulations. The treatment chemical of most concern is the primary coagulant ferric chloride. The Company has seen a near 40% increase in the volume of ferric chloride on average to treat current water conditions since 2012. It appears that the trend of increased chemical is will continue to increase in the near term. At this rate of use, the required volume of chemical storage at the water treatment facility is less than required by NHDES drinking water standards. The CDMSmith evaluation concluded that additional storage is required. In addition, the pumps that feed chemical into the treatment process are undersized for the anticipated demand and will need to be upsized. The Company will be pursuing the design and permitting of new and/or expanded chemical feed and storage facilities to meet current and future demand and raw water quality as well as to ensure regulatory compliance.

Q. Please identify and describe other projects planned for 2023 - 2025.

A. The selected projects are the more significant non-water main projects described by year below as follows:

2023 Projects

Meter Radio Replacement Year 3 (Budget $364,000): In 2023 the Company will continue the process of replacing approximately 2,800 customer meter radios that are at or approaching their useful life.

AWIA RRA – ERP Projects (Budget $200,000): The company will be completing assessments of the recommendations derived from the RRA-ERP to prioritize improvements that result in risk mitigation and improved emergency response. These may include but limited to:

- Security enhancements at remote facilities including locks, alarms, security lighting, cameras, fencing, etc.
- Redundancy improvements/additions such as back up pumps, portable pumps and generators, or water main improvements
- Computer hardware and software upgrades and enhancements
- Cybersecurity initiatives
- Structural enhancements to building structures to withstand extreme weather events
- SCADA system improvements including a possible transition from radio telemetry to more reliable communication technologies.

English Woods Alternative Source Interconnection (Budget $350,000): This project will be the completion of an interconnection water main from the Company's Powder Hill system to the English Woods CWS in Bedford. The English Woods CWS is served by bedrock wells that have limited capacity (there is a water restriction history at English Woods) and lack redundancy during maximum day conditions. There is no available ready land to install additional wells in a different aquifer. The interconnection watermain will connect from the Company's existing Powder Hill water main on Donald Street and run approximately 2,300 linear feet through a cross country easement to connect at

the English Woods Station. Water from Powder Hill is purchased from Manchester Water Works (MWW). MWW uses chloramines to disinfect its water while chlorine is used at English Woods. Treatment equipment will be added to the English Woods Station to remove chloramines, in order for the Company to maintain using chlorine as its primary disinfectant.

Parish Hills - Coburn Tank Area HP Zone Watermain Design (Budget $40,000):

The Coburn Tank Area of the Nashua Core water system is in the western side of Nashua at the Hollis Town line. The is heavily developed with single family homes in the elevated ground area surrounding the Coburn Storage Tank. Because the water storage elevation in the Coburn Tank is not much higher than the homes near the tank, working pressures are very low as some homes have pressure less than 15 pounds per square inch (psi) and even more have less than the Company minimum target pressure of 40 psi. This project, coupled with the Coburn Tank Area HP Booster Station project below, will create a constant pressure booster station to improve service to customers at higher ground elevation that experience pressures below regulatory minimums. The project includes the installation of 4 inch diameter water main along with appropriate control valves to provide domestic demand. Fire flow will be maintained by the existing 8 and 12 inch mains in the area.

Parish Hills - Coburn Tank Area HP Booster Station Design (Budget $20,000): This project is coupled with the Coburn Tank Area Watermain described above, to address chronic low pressures near the Coburn Tank.

Carbon Filter Media (Budget $600,000): In order to ensure compliance with the NHDES standard for perfluorooctanoic acid (PFOA) of 12 parts per trillion (ppt), the Company needs to refresh or change out the existing granular activated carbon filter media in 4 of its 12 filter beds not completed in 2022.

Security Cameras at the Water Treatment Plant (Budget $ 106,000): The camera project is being completed as a result of the AWIA RRA-ERP evaluation to enhance security around and within the water treatment facility and as an action to mitigate potential risk to the facility and staff working within the facility from potential malevolent acts or other safety concerns.

Esri Utility Network Transition (Budget $253,000): The ArcGIS desktop application ("Desktop") the Company is presently using is being replaced by a new program, ArcGIS Pro ("Pro"). There are many features in Pro that streamline workflows, improve the quality of web maps, as well as introduce data structuring capabilities not available in Desktop. Esri has announced that Desktop will no longer be supported after March 1, 2026. In addition to that, there will be no more updates to Desktop after version 10.8.1, which was released in August 2020. Given the fact that there will be no more updates to the Desktop software

and all updates and enhancements will be made in Pro, transitioning prior to 2026 will allow continued development of our GIS and Asset Management system without having to redo changes and modifications that make between now and 2026.

Nashua Water Treatment Facility Improvements Design (Budget $600,000): This design project follows the evaluation of the Company's chemical storage and chemical feed capacity at the water treatment facility completed with the assistance of our consultant CDMSmith. The design will be based on the report conclusions as discussed earlier in this testimony.

2024 Projects

Parish Hills - Coburn Tank Area HP Zone Watermain Construction (Budget $800,000): The project will add approximately 1,600 feet of 4 inch diameter watermain and appurtenances from the proposed booster stations to provide residences near the Coburn Tank with pressure greater than 45 pounds per square inch.

Parish Hills - Coburn Tank Area HP Booster Station Construction (Budget $550,000): This project is coupled with the Coburn Tank Area Watermain described above. The project is to be a small three pump above ground booster station to provide residences near the existing Coburn Tank that have pressures less than what regulation and good practice require/recommend.

Bowers Dam Spillway reconstruction/increase capacity (Budget $2,300,000): The project was designed in 2022 and was pushed to 2024 because of the availability of Federal grant funding to partially fund the work. The Company plans to complete a reconstruction of the Bowers Dam spillway in response to a letter of deficiency issued by the NHDES. The spillway reconstruction will increase the capacity of the spillway to ensure passage of the required flood flows and for more efficient operations of the overall required height of the dam spillway, as required by NHDES revised 100-year flows. The work will also include, depending upon the final analysis and design, enhancements to the earthen abutments to increase stability and ensure against overtopping during potential and designed for, flood events.

AWIA RRA – ERP Projects (Budget $200,000): The company will be completing assessments of the recommendations derived from the RRA-ERP to prioritize improvements that result in risk mitigation and improved emergency response. These may include but limited to:

- Security enhancements at remote facilities including locks, alarms, security lighting, cameras, fencing, etc.
- Redundancy improvements/additions such as back up pumps, portable pumps and generators, or water main improvements
- Computer hardware and software upgrades and enhancements
- Cybersecurity initiatives

- Structural enhancements to building structures to withstand extreme weather events
- SCADA system improvements including a possible transition from radio telemetry to more reliable communication technologies.

Meter Radio Replacement Year 4 (Budget $ 364,000): In 2024, the Company will continue the process of replacing approximately 2,800 customer meter radios that are at or approaching their useful life.

Year 1, Nashua Water Treatment Facility Chemical Feed and Storage Construction (2024 Budget $8,500,000 Overall Budget $12,400,000): This is a gross estimate of the construction of the improvements to the water treatment facility chemical feed and storage systems based upon the completed design on 2023. The project anticipates a major building expansion to house chemical bulk storage and additions/improvement chemical feed pumps, controls, monitoring, and piping. The budget is a high level “place holder” estimate, which will be revised as needed when the final design is completed in 2023. Since this project is a “one time” special project outside of the normal capital work completed annually by the Company, it will be funded via a special bond issuance consistent with the size and scope of the project and the construction schedule that will take two years, for which the Company will be preparing and filing a Financing approval docket with the Commission, when the final estimated project amounts and timing is known and measurable for this major multi-year project.

Vacuum Excavator Truck (Budget $600,000): This is actually a new equipment purchase and is a recognized need for the Company. The Vacuum Excavator Truck will allow for safe, more "surgical" and efficient excavation around other utilities, reduce excavation costs and pavement repairs by minimizing the size of required excavation and minimize the reliance on outside contractors.

2025 Projects

Meter Radio Replacement Year 5 (Budget $364,000): In 2025, the Company will continue the process of replacing customer meter radios that are at or approaching their useful life.

Year 2, Nashua Water Treatment Facility Chemical Feed and Storage Construction (2025 Budget $3,900,000 Overall Budget $12,400,000): This is a gross estimate of the construction of the improvements to the water treatment facility chemical feed and storage systems based upon the completed design on 2023. The project anticipates a major building expansion to house chemical bulk storage and additions/improvement chemical feed pumps, controls, monitoring, and piping. The budget is a high level "place holder" estimate, which will be revised as needed when the final design is completed in 2023.

Carbon Filter Media Replacement Round 1 (Budget $1,500,000): This will be the beginning of the next round of GAC filter media replacement to ensure

compliance with the NHDES standard of 12 ppb for PFOA. The plan is to complete 1/3rd of the filter beds each year beginning with Filters 1a through 4b.

Q. Does this conclude your testimony?

A. Yes.