The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

November 25, 2019

Rocco Dipietro
DFC Development, LLC
19 Cardiff Road
Windham, NH 03087
dipietrohomes@comcast.net

Transmitted via Email

Subject: **Water Conservation Plan and Waiver Approval**
Londonderry – The Meadows of Londonderry
Water Conservation Plan, NHDES # 005146

Dear Mr. Dipietro:

On November 25, 2019, the New Hampshire Department of Environmental Services ("DES") Drinking Water and Groundwater Bureau received a Water Conservation Plan (the "WCP"), signed on November 19, 2019, for The Meadows of Londonderry, located in Londonderry, New Hampshire. Pursuant to RSA 485:61 and Env-Wq 2101, community water systems seeking permits from DES for new sources of groundwater shall submit a water conservation plan to DES. Based on review of the WCP, DES has determined the WCP complies with Env-Wq 2101, *Water Conservation* rules.

Pursuant to Env-Wq 2101, the Town of Londonderry and the Southern New Hampshire Planning Commission were provided a copy of the WCP, along with other required materials.

On November 25, 2019, DES received three waiver requests, signed on November 19, 2019, in accordance with Env-Wq 2101.23, as follows:

1. A waiver to Env-Wq 2101.06(a)(1) and Env-Wq 2101.06(c) *Requirement to Install and Read Service Meters* has been requested.

2. A waiver to Env-Wq 2101.08 *Water Balance* and Env-Wq 2101.09 *Development and Implementation of Response Plans* has been requested.

3. A waiver to Env-Wq 2101.11 *Rate Structure and Billing Practices to Promote Water Conservation* has been requested.

The waivers have been requested because the system ownership is proposed to be transferred to a homeowners association (HOA). It is anticipated that the HOA will not have the administrative means to install, maintain, and read service meters; bill based on water usage; and determine the water balance. To meet the intention of the rules, the system proposed to conduct biannual night flow analyses to reduce water losses and to perform outreach to promote resident water conservation.

DES approves the WCP and the waiver requests based on the following conditions:

1. No later than source activation, all source meters, distribution meters, meters measuring water consuming processes, and any transfer meters and data loggers shall be installed.

2. Upon source activation, source meters and any other meters measuring water consuming processes prior to distribution shall be read monthly, no sooner than 27 days and no later than 33 days from the last meter reading.

3. All meters shall be installed per the manufacturer's instructions or American Water Works Association standards.

4. Upon source activation, all meters shall be tested and maintained based on the schedule proposed in the WCP.

5. Upon source activation, a leak detection and repair program shall be implemented in accordance with the WCP, including twice-yearly night flow analyses.

6. Leaks shall be repaired within 60 days of discovery.

7. From the date of this approval, all new non-metallic pipes installed in the system shall be outfitted with detectable tracer tape or detectable tracer wire, or be GPS located and maintained in a GIS system.

8. Upon source activation, a water conservation outreach and education program shall be implemented in accordance with the WCP, including the distribution of water efficiency outreach materials twice a year.

9. All water used for irrigation shall be regulated with smart controllers with rain and weather sensors. The smart controllers shall be regulated by the landscaper for the HOA and shall be locked to limit access. The system's operator shall monitor system water usage increases due to lawn irrigation to assure that the system usage does not exceed the well's permitted production volume.

10. Upon source activation, monthly source production volumes shall be reported to the DES Water Use Registration and Reporting Program on a quarterly basis. Upon source activation, DES will assign the system a Water Use Identification number and provide instructions for registering as a data provider and utilizing the DES OneStop reporting tool.

11. Every three years from the date of this approval, a *Water Conservation Plan Ongoing Compliance Reporting Form* shall be submitted to DES documenting how the system has maintained compliance with the WCP. The following records shall be maintained by the water system to include with the report:

    a. A leak log including the date a leak was discovered, the date a leak was repaired, the type of leak (ex. water main, service line, hydrant, valve), the approximate size of the leak (gpm), and the nearest address to the leak.

    b. The title of water efficiency materials distributed and the date of distribution.

    c. Date of installation and replacement of all meters as well as testing and calibration records.

    d. Data from biannual night flow analyses and a brief summary of the analyses.

12. The waiver shall be valid for no more than four years from the date of this approval. Prior to the expiration of the waiver, a waiver request shall be sought in order to be considered an extension of the original waiver approval.

13. Proposed changes to the WCP shall not be implemented unless approved by DES.

The *Water Conservation Plan Ongoing Compliance Reporting Form* may be located by going to the DES website (www.des.nh.gov), clicking on the "A-Z List" in the top right corner of the page, clicking "Water Conservation," and scrolling down to "Forms/Applications."

Please feel free to contact me with any questions at (603) 271-0659 or via e-mail at kelsey.vaughn@des.nh.gov.

Sincerely,

Kelsey Vaughn

Kelsey Vaughn
Water Conservation Program
Drinking Water and Groundwater Bureau

ec: Bruce Lewis, Neil Helberg; Lewis Engineering, PLLC
Town of Londonderry
Southern New Hampshire Planning Commission
Andrew Koff, Stacey Herbold; DES

WATER CONSERVATION PLAN
THE MEADOWS OF LONDONDERRY
NOVEMBER 2019

A community water system seeking authorization for a new source of water must submit a water conservation plan to the New Hampshire Department of Environmental Services (NHDES) for approval demonstrating how the water system proposes to comply with water conservation standards pursuant to Env-Wq 2101, *Water Conservation* rules. The Meadows of Londonderry is a new small community water system.

Activities outlined in the water conservation plan will be completed by water system personnel under the supervision of a certified water system operator.

Note: A waiver is being requested to the requirements to install service meters, bill based on usage, and conduct a yearly water balance.

I. Introduction

A. Contact Information

1. Name and location of system:

   The Meadows of Londonderry – Londonderry, NH
   The water system is located at 48 Old Nashua Road (South of Route 102).

2. Owner of system and mailing address:

   DFC Development, LLC
   Rocco Dipietro
   19 Cardiff Road, Windham, NH 03087
   dipietrohomes@comcast.net
   603-765-6560

3. Name and mailing address of preparer of water conservation plan:

   Neil W. Helberg, P.E.
   Lewis Engineering, PLLC
   44 Stark Lane, Litchfield, NH 03052
   603-886-4985

B. System Overview

1. Description of the community being served:

   The proposed senior housing development will have 42 2-bedroom units.

2. Description of water sources, including water sources to be developed for non-potable uses such as irrigation:

   The water system will be fed by a single bedrock well to be located 175 feet east of the pump house at the entrance to the development. The well will have a 175-foot radius and will be tested at 18.75 gpm. The proposed water system will provide domestic water and lawn irrigation. The operator will monitor system water usage increases due to lawn irrigation to assure that the system usage does not exceed the well's PPV.

3. Name designation of each proposed water source:

   Bedrock Well No. 1

4. Number of connections proposed for each of the following classes:
   a) Residential: 42
   b) Industrial/Commercial/Institutional: 0
   c) Municipal: 0

5. The water system does not plan to provide water to any consecutive water systems or privately-owned redistribution systems.

6. There are no proposed connections that will receive more than 20,000 gpd.

C. Transfer of Ownership

1. The ownership of the water system is proposed to be transferred to a homeowner's association upon completion of the water system.

II. System Side Management

A. Water Meters

1. Source and Other System Side Meters

a) No later than the source activation date, a meter will be installed on each water source.

b) No later than the source activation date, a distribution meter will be installed to measure flow at the point of entry into the water system.

c) No separate irrigation wells are proposed.

d) Meter make, model, size, and flow range of proposed meters for each water source and other system side meters (if known):

The source meter will be a 1-inch Badger M2000 Mag Meter with a transmitter. The meter has a flow range of 0.21 to 84 gpm. The meter will be installed vertically. The pump house control panel for the water system controls the operation of the well pump based on a 4-20mA signal from the Badger Mag Meter's transmitter.

The distribution meter will be a 2-inch Badger M2000 Mag Meter with a transmitter. The meter has a flow range of 0.94 to 378 gpm. The pump house control panel for the water system controls the operation of the booster pumps based on a 4-20mA signal from the Badger Mag Meter's transmitter. (See Appendix B for meter installation recommendations and requirements from the manufacturer.)

A meter will be installed to measure the water used for irrigation. The meter make, model, and size will be determined at a later date, but a Neptune T-10 is most likely. (If it is a Neptune T-10, the meter will be installed horizontally.)

e) No later than the source activation date, source meters and other system side meters will be read at least monthly.

2. Meter Selection, Installation, and Maintenance

    a) All meters will be American Water Works Association (AWWA) certified.

    b) The selected size of the meters will be based on projected flow rates.

    c) Meters will be installed as specified by the manufacturer, including requirements for horizontal or vertical placement, distance of straight run of pipe upstream and downstream of the meter, and strainer installation. If the manufacturer does not supply installation specifics, meters will be installed in accordance with the "Manual of Water Supply Practices M6, Water Meters-Selection, Installation, Testing, and Maintenance" (AWWA, 2012).

    d) The following meter testing and calibration schedule or meter change-out schedule will be implemented. If the manufacturer's accuracy warranty extends beyond the schedule below, the meter will be tested or changed-out no later than the warranty expiration date.

Meter Size (inches)	**Testing Rate (years)**
<1"	10 yrs
1" - 2"	4 yrs
3"	2 yrs
>3"	1 yr

    e) A log of the dates when meters were installed, tested, calibrated, repaired, and replaced will be maintained. Calibration certificates will be kept on file.

B. Leak Detection and Repair

1. A leak detection program will be implemented upon source activation. The leak detection program will utilize a night flow analysis as follows:

    a) The system will conduct a night flow analysis at least twice a year.

    b) A distribution meter capable of reading low flows will be installed on the distribution line. The make, model, and size of the proposed distribution meter is a 2-inch Badger M2000 Mag Meter.

    c) See Appendix B for the night flow analysis methodology.

2. All non-metal pipes will either be GPS located and stored in a GIS system or equipped with detectable tracer tape or detectable tracer wire.

3. Leak detection will be conducted in accordance with the "Manual of Water Supply Practices M36, Water Audits and Loss Control Programs" (AWWA, 2016).

4. Leaks will be repaired within 60 days of discovery unless a waiver is obtained in accordance with Env-Wq 2101.23.

5. A log of all leaks will be maintained, including the date the leak was discovered, the date the leak was repaired, the type of leak (ex. service, main, hydrant, valve), the size of the leak (gpm), and the nearest street address to the leak.

C. Pressure Management

1. The design pressures of the system are from 60 psi to 70 psi.

III. Consumption Side Management

A. Irrigation Water Management

1. All water used for irrigation will be regulated with smart controllers with rain and weather sensors. The smart controllers will be regulated by the landscaping company for the Association and will be locked to limit access.

B. Educational Outreach Initiative

1. No later than the source activation date, the system will distribute water efficiency outreach materials twice a year with the Consumer Confidence Report and Association Newsletter. The materials distributed will be either NHDES Water Efficiency Fact Sheets located at http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/index.htm#efficiency or EPA WaterSense materials located at http://www.epa.gov/watersense/.

2. The system will maintain a log indicating how the system has complied with III. B.1., above. The log will include dates the outreach and education actions were taken and what was done.

IV. Reporting and Implementation

A. The water system will submit a form supplied by NHDES once every three years from the date of the water conservation plan approval documenting how compliance with the requirements of Env-Wq 2101, *Water Conservation* rules, is being achieved. The system will use the meter, leak, and outreach and education logs to complete the form.

B. The data collected with each night flow analysis from the previous three years, as well as a statement as to whether a leak was suspected or not, will be submitted with the report form in IV.A., above.

C. The water system will report monthly production volumes quarterly to the NHDES Water Use Registration and Reporting Program upon receiving a Water Use Identification Number from NHDES. Monthly means once every calendar month, but no sooner than 27 days after and no later than 33 days after the previous reading.

I certify that I have read this Water Conservation Plan, understand the responsibilities of the water system as referenced in the plan, and that all information provided is complete, accurate, and not misleading.

Owner Name (print): Rocco DiPietro

Owner Signature: RrDiPietro Date: 11-19-19

Appendix A
Definitions

Authorized metered consumption: billed metered water plus unbilled metered water.

Community water system (CWS): a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

Consecutive water system: a public water system that buys or otherwise receives some or all of its finished water from one or more wholesale systems for at least 60 days per year.

Final source approval: the date of final well siting approval or the date of issuance of the large groundwater withdrawal permit.

Large community water system: a community water system that serves more than 1,000 persons.

Privately owned redistribution system (PORS): A system for the provision of piped water for human consumption which does not meet the definition of a public water system and meets all of the following criteria:

(1) Obtains all of its water from, but is not owned or operated by, a public water system; (2) serves a population of at least 25 people, 10 household units or 15 service connections, whichever is fewest, for at least 60 days per year; and (3) has exterior pumping facilities, not including facilities used to reduce pressure, or exterior storage facilities which are not part of building plumbing.

Public water system (PWS): a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Small community water system: a community water system that serves 1,000 people or less.

Source activation date: the date the source is placed into use.

System input volume: the volume of water input to the water supply system after treatment, analysis and storage.

Water balance: the difference between the system input volume and authorized metered consumption.

Water conservation: any beneficial reduction in water losses, waste or use.

Wholesale system: a public water system or an industrial, commercial or institutional (ICI) water user that treats source water and then sells or otherwise delivers finished water to a consecutive water system or privately owned distribution system.

Appendix B
Night Flow Analysis Methodology

1. Distribution Meter

    a. A meter capable of measuring flows less than 2 gallons per minute (gpm) will be installed on the distribution line and located after treatment, any other water consuming processes, and storage.

        1. A 2-inch Badger M2000 Mag Meter is being proposed. The meter has a flow range of 0.94 to 378 gpm.

            a) The manufacturer notes that this meter performs best when installed vertically with water flowing upward. See figure below.

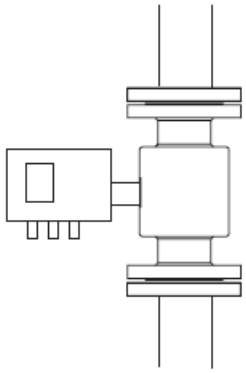

Figure 6: Vertical placement

            b) The manufacturer notes that a minimum of 3 or 7 diameters of straight pipe are required on the inlet (upstream) side of the meter, and two diameters of straight pipe are required on the outlet (downstream) side of the meter. See figure below.

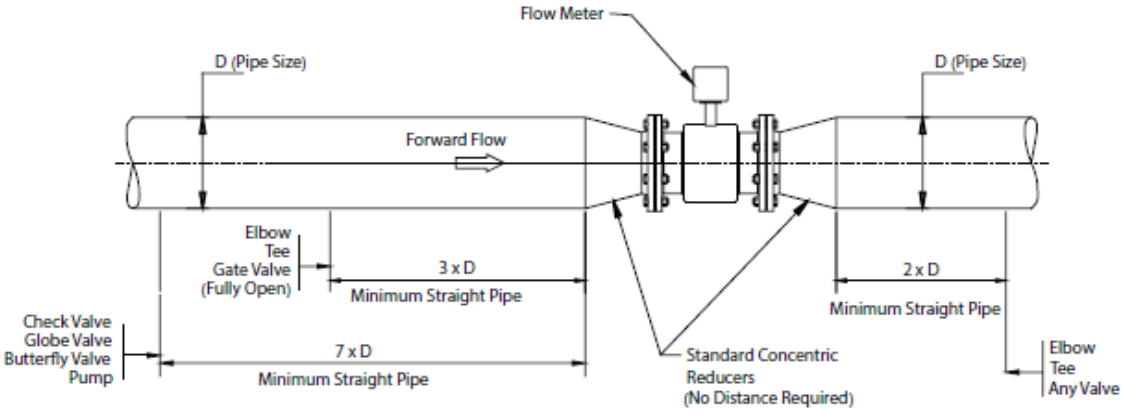

Figure 8: Minimum straight pipe requirements

2. Determining Baseline Flow

    a. When the system is approved for operation and pressure tested to ensure for no leaks, the night flow analysis will be conducted as described in Section 3, below. The baseline flow will be the lowest flow recorded.

b. The results of the initial night flow analysis and the proposed baseline flow will be submitted to NHDES for review.

3. Night Flow Analysis

a. Night flow analysis will be conducted at least twice a year and no sooner or later than 6 months apart.

b. Water usage will be recorded every minute for one hour during a period of anticipated low water demand using a distribution meter (between 1 am and 3 am is recommended). Prior to the night flow analysis, users of the system will be requested to refrain from using water during the date and time of the scheduled night flow analysis. (Night flow analysis will be conducted prior to sprinkler season.)

c. If the lowest flow is above the baseline flow, then water usage will continue to be recorded every minute for an additional hour.

d. If the lowest flow is more than 2 gpm above the baseline, a leak will be suspected.

1. All residents will be asked to check their homes for leaks, including running toilets and outdoor spigots. The previous steps will then be repeated in 3 days. If the lowest flow is still above the baseline flow, the actions in Steps 2 and 3 below will be taken.

2. Select portions of the system will be isolated and evaluated by closing valves while monitoring the change in flow as measured by the distribution meter. For example, when one valve is closed, the person in the field operating the valve will then communicate with a second person observing the distribution meter to monitor for a change in the background flow.

3. No later than two weeks after isolating the leak to a branch of the system, a sub-contractor skilled in acoustic leak detection will be retained and will assist with pinpointing the leak.

e. Records will be maintained of each night flow analysis, including recorded flows and leak repair results.

Appendix C
Notification Process

Public Notification Instructions
Once a final draft of the water conservation plan is agreed upon by the applicant and NHDES, NHDES will send a signature line to the applicant for addition to the plan along with a summary of the requirements of Env-Wq 2101, which may be found at http://des.nh.gov/organization/divisions/water/dwgb/water_conservation/index.htm.

Within 10 working days of receiving the summary from NHDES, the applicant is required to provide a copy of the water conservation plan and rules summary via certified mail with return receipt requested to:

- the governing board of the municipality in which a proposed source is located,
- the governing board of all municipalities that receive water from the water system (if any),
- the governing board of all wholesale customers of the water system (if any), and
- the regional planning commission serving the location of the proposed source.

The applicant must also request that the governing board amend local site planning requirements to reflect the requirements of Env-Wq 2101 and to promote water conservation landscaping for new projects.

All signed copies of the certified mail return receipts (the green cards) must be forwarded to NHDES along with the final, signed water conservation plan before approval of the water conservation plan will be issued.

Notification of Consecutive Water Systems and Privately Owned Redistribution Systems
Within 5 working days of obtaining final approval of the source from NHDES, the system is required to notify any consecutive water system or privately owned redistribution system receiving water from the system of the following:

- The projected source activation date; and
- The system will be subject to Env-Wq 2101 as of the source activation date, pursuant to Env-Wq 2101.13 and should contact the NHDES Water Conservation Program using the contact information below.

Kelsey Vaughn, Water Conservationist
New Hampshire Department of Environmental Services
Drinking Water and Groundwater Bureau
PO Box 95
Concord, NH 03302-0095
kelsey.vaughn@des.nh.gov
Phone: (603) 271-0659
Fax: (603) 271-0656

WATER CONSERVATION WAIVER REQUEST
LONDONDERRY – THE MEADOWS OF LONDONDERRY
NOVEMBER 2019

I. System and Source Information

A. Contact Information

1. Name and location of system:

The Meadows of Londonderry – Londonderry, NH
The water system is located at 48 Old Nashua Road (South of Route 102).

2. Owner of system and mailing address:

DFC Development, LLC
Rocco Dipietro
19 Cardiff Road, Windham, NH 03087
dipietrohomes@comcast.net
603-765-6560

3. Name and mailing address of preparer of water conservation plan:

Neil W. Helberg, P.E.
Lewis Engineering, PLLC
44 Stark Lane, Litchfield, NH 03052
neil.lewis.h2o@comcast.net
603-886-4985

B. System Overview

1. Description of the community being served:

The proposed senior housing development will have 42 2-bedroom units.

2. Description of water sources, including water sources to be developed for non-potable uses such as irrigation:

The water system will be fed by a single bedrock well to be located 175 feet east of the pump house at the entrance to the development. The well will have a 175-foot radius and will be tested at 18.75 gpm. The proposed water system will provide domestic water and lawn irrigation. The operator will monitor system water usage increases due to lawn irrigation to assure that the system usage does not exceed the well's PPV.

3. Name designation of each proposed water source:

Bedrock Well No. 1

4. Number of connections proposed for each of the following classes:

a) Residential: 42
b) Industrial/Commercial/Institutional: 0
c) Municipal: 0

5. The water system does not plan to provide water to any consecutive water systems or privately-owned redistribution systems.

6. There are no proposed connections that will receive more than 20,000 gpd.

C. Transfer of Ownership

1. The ownership of the water system is proposed to be transferred to a homeowner's association upon completion of the water system.

II. Requested Rules to Be Waived

1. Env-Wq 2101.06(a)(1) and Env-Wq 2101.06(c) – Relative to the installation of meters at all service connections.

2. Env-Wq 2101.08 and Env-Wq 2101.09 – Relative to the completion and submittal of a water balance each year and a response plan if the water balance is greater than 15 percent.

3. Env-Wq 2101.11 – Relative to the establishment of a rate of payment for water consumed and the quarterly billing of customers within the Home Owners Association.

III. Economic and Operational Consequences of Complying with the Rules Requested to Be Waived

1. The installation of a meter for each home amounts to over $12,500 in extra costs.

2. The quarterly cost to read all of the meters for the 42-unit condominium association must be completed by association members or by contracting an outside utility or operator.

3. The compilation of the water meter readings and the billing of each homeowner and accounting for the billing would have to be completed by association volunteers or an outside service company.

4. The billing for water based on water usage would be similar to the billing each unit owner a set rate per month to account for the costs to operate and maintain the water system.

5. The completion of the yearly water balance report would likely not provide any additional information than the monitoring of the pumping station distribution meter by the water system operator.

IV. Proposed Alternatives for Meeting the Intentions of the Rules Requested to Be Waived

1. The intent of the rules is to protect and conserve the water resources in New Hampshire. The certified operator will monitor the supply wells and the distribution meter for the water system. Water usage will vary by the season of the year but will stay within set ranges per customer year after year. A data recorder installed for the water system will provide at a minimum: hourly, daily, and monthly water usage information for the water system. This data is easily monitored by the certified operator.

2. The distribution meter and data recorder will provide data for the Night Flow Analysis that will be conducted twice a year.

3. Water use will not exceed the permitted production volume for the well. Changes in the volume of well water used and the peaks in flow leaving the pump house will be monitored to prevent water losses.

4. The water users will receive educational materials about water efficiency from the homeowner's association twice yearly.

5. Fewer meters to monitor will result in fewer accounting errors and will likely result in the same conclusions about water use.

V. Length of Time the Waiver Will Be Needed

1. The rules need to be waived for the foreseeable future to continue providing the economic savings noted above.

I certify that the information provided in this waiver request is complete, accurate, and not misleading.

Water System Owner Signature

11-19-19
Date