



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

WATER CONSERVATION PLAN APPROVAL

June 15, 2016

Orchard Highlands Owners Association
Ian Simon, President
37 Merrymeeting Drive
Merrimack, NH 03054

**Subject: Goffstown – Orchard Highlands (PWS ID #: 0912020)
Water Conservation Plan, NHDES # 999141**

Dear Mr. Simon:

On June 8, 2016, the New Hampshire Department of Environmental Services (“DES”) Drinking Water and Groundwater Bureau received a Water Conservation Plan (the “WCP”), signed on June 8, 2016, for Orchard Highlands located in Goffstown, 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 Goffstown and the Southern New Hampshire Planning Commission were provided a copy of the WCP, along with other required materials.

DES approves the WCP based on the following conditions:

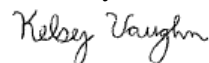
1. No later than source activation, all source meters, distribution meters, meters measuring water consuming processes, and any transfer meters and data loggers shall be installed.
2. All meters shall be installed per the manufacturer’s instructions or American Water Works Association standards.
3. Upon source activation, all meters shall be tested and maintained based on the schedule proposed in the WCP.
4. 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.
5. No later than one month from the date of final source approval, a night flow analysis using the distribution meter and data logger shall be conducted at least twice a year in accordance with the night flow methodology in the WCP.
6. No later than one year from the date of final source approval, 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.

7. No later than final source approval, the system shall begin reporting monthly production volumes to the DES Water Use Registration and Reporting program on a quarterly basis. DES has assigned **WUID 21007** to the facility. The total monthly volume withdrawn from each source shall be reported to DES on a quarterly basis. The first quarter report is due **October 21, 2016**. The water system shall register as a data provider and utilize the DES OneStop reporting tool to submit water use data. Instructions for using the tool are enclosed with this letter. If you have any questions about Water Use Registration and Reporting or registering as a data provider, please contact Stacey Herbold by phone at (603) 271-6685 or by email at stacey.herbold@des.nh.gov to provide authorization.
8. The primary operator, Pennichuck Water Service Co. ("PWSC"), is already an authorized data provider for at least one other facility. If you choose to retain PWSC to report to the Water Use and Registration Program for your system, please contact Stacey Herbold by phone at (603) 271-6685 or by email at stacey.herbold@des.nh.gov to provide authorization.
9. 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.
10. 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 analysis and a brief summary of the analysis.
11. 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
Water Conservation Program
Drinking Water and Groundwater Bureau

Attached: (2) Water Use Registration Guidance and Water Use Reporting Guidance

ec: Neil Helberg, Lewis Engineering, PLLC
Bernard Rousseau, Pennichuck Water Service Co.
Peter Szeidler, Great North Property Management Inc.
Town of Goffstown
Southern New Hampshire Planning Commission
Christine Bowman, DES
Steve Roy, DES
Cynthia Klevens, DES

WATER CONSERVATION PLAN: **Orchard Highlands** **February 2016**

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. **Orchard Highlands** is an existing 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.

I. Introduction

A. Contact Information

1. Name and location of system: **Orchard Highlands- Wallace Road, Goffstown, NH**
2. Owner of system and mailing address:
Orchard Highlands Owners Association
Ian Simon, President/Board Member
37 Merrymeeting Drive, Merrimack, NH 03054
(603) 424-4699
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. Brief description of the community being served: The single-family condominium development includes 42 2-bedroom townhomes.
2. Description of water sources, including water sources to be developed for non-potable uses such as irrigation: The Final Well Siting Report was submitted to the NHDES DWGB on February 17, 2016. Two (2) bedrock wells are protected by 200-foot and 175-foot radii. Well 1 and Well 2 were tested at 2 gpm and 4.1 gpm respectively. The existing community water system provides domestic water and limited outside hand-watering.
3. Name designation of each proposed water source and any existing sources: **Well 1 and Well 2**
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 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.

7. Water Use: For existing systems, please provide the below information based on metered source withdrawal volumes from the last complete year. Please report in gallons.

Year: **2015**

Average daily use (ADU): **3774 gpd**

Lowest ADU in the winter: **2673 gpd**

Highest ADU in the summer: **5635 gpd**

C. Transfer of Ownership

1. The system ownership is not proposed to be transferred from the homeowners association.

II. System Side Management

A. Water Meters

1. Source Meters

a) No later than the source activation date, meters will be installed on each new and any existing water source.

b) An irrigation well is not proposed.

c) Source meter information for existing source and if known, for each proposed source:

Source Name: **Well 1**

Source Meter Make: **REPCO**

Source Meter Model: **BUB080-A**

Source Meter Size: **1 inch**

Source Meter Installation Date: **09/22/2015**

Last Meter Test/Calibration Date: **FACTORY**

Source Name: **Well 2**

Source Meter Make: **REPCO**

Source Meter Model: **BUB080-A**

Source Meter Size: **1 inch**

Source Meter Installation Date: **09/22/2015**

Last Meter Test/Calibration Date: **FACTORY**

d) No later than the source activation date, source meters will be read every 30 days.

Intermittent, hourly, daily, and monthly flows are recorded by the GS400 data recorder installed in the control panel.

2. Meter Selection, Installation, and Maintenance

- a) All meters will be AWWA certified, with the exception of b), below.
- b) AWWA does not have standards for magnetic flow meters. If a magnetic flow meter is proposed, the meter make, model, size, and manufacturer specifications will be forwarded to the NHDES Water Conservation program for review. The meter will not be installed until receiving approval for its use from NHDES.
- c) The selected size of the meters will be based on projected flow rates.
- d) 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," (American Water Works Association, 2012).
- e) The following meter testing and calibration schedule or meter change-out schedule will be implemented. If the manufacturer's accuracy warranty extends beyond the below schedule, the meter will be tested or changed-out no later than the warranty expiration date.

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

- f) A log of the date meters were installed, tested, calibrated, repaired, and replaced will be maintained and calibration certificates will be kept on file.

B. Pressure Management

- 1. The design pressures of the system are from **45 psi** to **85 psi**.

C. Leak Detection and Repair

- 1. Leak detection methodologies will be conducted in accordance with "Manual of Water Supply Practices M36, Water Audits and Loss Control Programs" (American Water Works Association, 2009).
- 2. Leaks will be repaired within 60 days of discovery unless a waiver is obtained in accordance with Env-Wq 2101.09.

3. 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 leak (gpm), and the nearest street address to the leak.

D. Night Flow Analysis

1. The system will conduct a night flow analysis at least twice a year. Night flow analysis will be implemented no later than one month from the date of final source approval.
2. A distribution meter capable of reading low flows will be installed on the distribution line. The make, model, and size of the distribution meter is: **2-inch Badger M2000 Magnetic Meter**.
3. See Appendix B for the night flow methodology.

III. Consumption Side Management

A. Educational Outreach Initiative

The following education and outreach initiative will be implemented no later than one year from the date of final source approval:

1. The system will begin distributing water efficiency outreach materials twice a year with the Consumer Confidence Report in the Spring and with homeowner correspondence in the Fall. 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. A.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* are being achieved.
- 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 ID number from NHDES. Monthly means once every calendar month, but not 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): Ian Simon, President, on behalf of Orchard Highlands Owners Association

Owner Signature: _____

Date: 6/8/16

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 a 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
Leak Detection: Night Flow Methodology

1. Distribution Meter

- a. A **2-inch Badger M2000 Magnetic Meter** capable of measuring low flows will be installed on the distribution line and located after treatment, any other water consuming processes, and storage.

2. Determining Baseline Flow

- a. Baseline flow will be determined when the system is tight. The system will be considered tight when (this may vary based on the size and age of the system):
 - 1. A leak detection survey is conducted and all leaks discovered are repaired; or
 - 2. An initial night flow analysis is conducted and night flow decreases to 0 gpm.
- b. The results of the 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 between 1 am and 3 am using a distribution meter. Prior to the night flow analysis, users of the system will be requested to refrain from using water between 1 am and 3 am on this date. (Night flow analysis will be conducted prior to sprinkler season.)
- c. If low flow is above the baseline, then flows will continue to be recorded for an additional hour.
- d. If low flow is more than **8** gpm above the baseline, a leak will be suspected. Skip to Step f.
- e. If low flow is still above the baseline, but no more than **8** gpm above the baseline, all residents will be asked to check their homes for leaks, including running toilets and outdoor spigots. The previous steps will then be repeated again in 3 days. If again low flow is above the baseline, a leak on the distribution side of the system will be assumed.
- f. If a leak is suspected, the leak will be isolated by closing valves to isolate select portions of the system, while evaluating the change in flow as measured by the distribution meter. For example, when one valve is closed, one person in the field (operating the valves) will then communicate with a second person observing the distribution meter to monitor for a change in the background flow.
- g. No later than two weeks from isolating the leak to a certain branch of a system, a sub-contractor skilled in acoustic leak detection will be retained and assist with pinpointing the leak.
- h. Records will be maintained of each night flow analysis, including recorded flows and leak detection results.

Appendix C Notification Process

Public Notification Instructions

Within 10 days of submitting the conservation plan to NHDES, the applicant is required to provide a copy of the plan via certified mail with return receipt requested to the governing board of the municipality in which a proposed source is located, all municipalities that will receive water from the water system (if any), all wholesale customers (if any), and the regional planning commission serving the location of the proposed source. In most cases, only the municipality and the regional planning commission will require notification. All signed copies of the certified mail return receipt (the green card) must be forwarded to NHDES.

Additional Attachments

The applicant must provide the governing boards 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, and request that the governing board amend local site planning requirements to reflect the requirements of Env-Wq 2101 or to promote water efficiency.

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, that pursuant to Env-Wq 2101.13, the systems must implement a water conservation plan and should contact the NHDES Water Conservation Program using the contact information below.