The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Robert R. Scott, Commissioner

WATER CONSERVATION PLAN APPROVAL

September 20, 2018

Anne Garceau
Barrington Oaks Cooperative
PO Box 242
West Nottingham, NH 03291
bridehonzi@aol.com

Transmitted via Email

Subject: **Barrington – Barrington Oaks (PWS ID #: 0153030)**
Water Conservation Plan, NHDES # 004558

Dear Ms. Garceau:

On September 13, 2018, the New Hampshire Department of Environmental Services ("DES") Drinking Water and Groundwater Bureau received a Water Conservation Plan (the "WCP"), signed on August 30, 2018, for Barrington Oaks located in Barrington, 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 Barrington and the Strafford Regional 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, a meter on each new and any existing sources 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 approval, the system shall report monthly source production volumes to the DES Water Use Registration and Reporting Program on a quarterly basis. DES has assigned Water Use ID 21035 to the system. The first quarter report due is **Quarter 4 2018**. The reporting period opens January 1, 2019 and is due 45 days from the end of the reporting period. 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 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.

6. The primary operator, Secondwind Water Systems, is already an authorized data provider for at least one other system. If you retain Secondwind Water Systems to report to the Water Use Registration and Reporting 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.

7. Within one year of source approval, a distribution meter capable of reading low flows shall be installed and night flow analysis shall commence at a rate of twice a year in accordance with the night flow methodology in the WCP.

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

9. Within one year of source approval, a water conservation outreach and education program shall be implemented in accordance with the WCP.

10. 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.

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. 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

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

ec: Joel Banaszak; Horizons Engineering, Inc.
Christopher Vaughn; Secondwind Water Systems, Inc.
Suzanne Smith; Barrington Oaks Cooperative
Town of Barrington
Strafford Regional Planning Commission
Andrew Koff, Stacey Herbold; DES

WATER CONSERVATION PLAN: **BARRINGTON OAKS COOPERATIVE**

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. Barrington Oaks 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: Barrington Oaks, Barrington

2. Owner of system and mailing address: Barrington Oaks Cooperative c/o Anne Garceau, President, P.O. Box 242 West Nottingham, NH 03291

3. Name and mailing address of preparer of water conservation plan: Joel F. Banaszak, Horizons Engineering, Inc. P.O. Box 1825 New London, NH 03257

B. System Overview

1. Brief description of the community being served (ex. number of units, apartments, partially attached condos, individual homes, shared common facilities, population, etc.): A manufactured home park with 125 users and 49 connections.

2. Description of water sources, including water sources to be developed for non-potable uses such as irrigation: There are currently two existing wells: BRW1 and BRW2. BRW1 is planned to be abandoned due to diminished yield and poor water quality. The system has drilled and plans to connect a new well: BRW3. There are no sources for irrigation or other non-potable uses. Potable water is not used for fire protection or in-ground irrigation.

3. Name designation of each proposed water source and any existing sources: Existing well BRW2 and proposed well BRW3. Existing well BRW1 is planned to be abandoned.

4. Number of connections proposed for each of the following classes:
   a) Residential: 49
   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 receive more than 20,000 gpd.

7. Please provide the following information based on metered source withdrawal volumes from the last complete year. Please report in gallons.

Year: 2017
Average daily use (ADU): 6,000 gallons per day
Lowest ADU in the winter: 5,467 gallons per day
Highest ADU in the summer: 6,744 gallons per day

Note: Average daily use in the winter is likely affected by the common practice of residents letting faucets drip in an effort to prevent pipe freezing.

C. Transfer of Ownership

1. The system ownership is not proposed to be transferred.

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 each existing source and if known, for each proposed source:

Source Name: BRW1 (existing) then BRW3 (proposed)
Source Meter Make: Sensus
Source Meter Model: iPERL
Source Meter Size: 3/4”
Source Meter Installation Date: 2016
Last Meter Test/Calibration Date: Manufactured 1/2016
Note: The meter currently measuring production volumes from BRW1 will be used to measure production volumes from the new well (BRW3).

Source Name: BRW2 (existing)
Source Meter Make: Sensus
Source Meter Model: iPERL
Source Meter Size: 3/4”
Source Meter Installation Date: 2016
Last Meter Test/Calibration Date: Manufactured 1/2016

d) No later than the source activation date, source meters will be read at least monthly.

2. Meter Selection, Installation, and Maintenance

a) All meters will be American Water Works Association (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" (AWWA, 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 schedule below, the meter will be tested or changed-out no later than the warranty expiration date. Meters must be maintained for accuracy.

Meter Size (inches)	Testing Rate (years)
<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. Calibration certificates will be kept on file.

B. Pressure Management

1. The design pressures of the system are from 50 psi to 65 psi.

C. Leak Detection and Repair

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

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

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

D. Water Loss Minimization- Night Flow Analysis

1. The system will conduct a night flow analysis at least twice per year; once before summer and once before winter. Night flow analysis will be implemented no later than one year 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 proposed distribution meter is a 5/8" Neptune T-10. This meter will be installed on a bypass line. The system currently has a 1 ½" AMCO C700 distribution meter, but it is not capable of reading low flows for the purpose of the night flow analysis.

3. See Appendix B for the night flow methodology.

III. Consumption Side Management

A. Educational Outreach Initiative

1. No later than one year from the date of final source approval, the system will distribute water efficiency outreach materials twice a year: in the documents distributed before the Coop's annual meeting and one other time in the year as a separate mailing.

a) 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* rules, is 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 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): Suzanne Smith - Vice President

Owner Signature: Suzanne Smith Date: 8/30/2018

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
Leak Detection: Night Flow Methodology

1. Distribution Meter

    a. A meter capable of measuring low flows will be installed on the distribution line and located after treatment, any other water consuming processes, and storage. The meter make, model, and size will be forwarded to NHDES prior to purchase/installation for review and approval. The proposed meter is a 5/8" Neptune T-10. This meter will be installed on a bypass line. The system currently has a 1 ½" AMCO C700 distribution meter, but it is not capable of reading low flows for the purpose of the night flow analysis.

2. Determining Baseline Flow

    a. Baseline flow will be determined when the system is tight. The system will be considered tight when:
        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 the low flow is above the baseline, then flows will continue to be recorded for an additional hour.

    d. If the low 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 low flow is still above the baseline, the actions in Steps 2 and 3 below will be taken.

        2. If the leak continues, 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 detection 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, *Water Conservation* rules. Within 10 working days of receiving the summary from NHDES, the applicant is required to provide a copy of the water conservation 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 receipts (the green cards) must be forwarded to NHDES along with the final, signed water conservation plan.

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.

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