



The

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

hereby issues

LARGE GROUNDWATER WITHDRAWAL PERMIT

NO. LGWP-2004-0001

to the permittee

GRANITE FIELDS GOLF CLUB

for the withdrawal of the following volumes of groundwater from two wells:

Well PW-2 – 48,960 gallons over any 24-hour period

Well PW-3 – 82,080 gallons over any 24-hour period

located at the Granite Fields Golf Club facility in Kingston, New Hampshire.

TO: JIM DUFRESNE
GRANITE FIELDS GOLF CLUB
P.O. BOX 985
KINGSTON, NH 03848

Date of Issuance: April 20, 2004

Date of Expiration: April 20, 2014

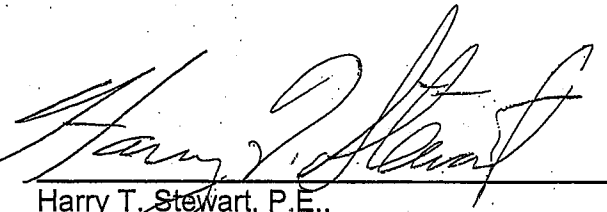
Pursuant to authority in N.H. RSA 485-C:21, the New Hampshire Department of Environmental Services (Department), hereby grants this permit to withdraw groundwater from well PW-2 and well PW-3, subject to the following conditions:

1. Application of Env-Ws 387 - The permittee shall continue to comply with the requirements of Env-Ws 387 at all times.
2. Inspections - The permittee shall allow any authorized member of the Department's staff, or its agent, to enter the property covered by this permit for the purpose of collecting information, examining records, collecting water level measurements, or undertaking other action associated with this permit.
3. Water Level Monitoring and Reporting - The permittee shall measure the water level at each location according to a.-d. below. A summary of all monitoring data shall be prepared in a hard copy format and submitted in an annual report to the Department by January 31 of each year, commencing January 31, 2005, and shall include data for the preceding year ending on December 31. Data collection shall begin, at a minimum, thirty days prior to operating the large withdrawals authorized by this permit and extend for thirty days after withdrawals are terminated. The annual report shall include an electronic spreadsheet using a template provided by the Department, and shall be tabulated and graphed. The annual report shall include an assessment of the potential impacts associated with the withdrawal including trends and variability. The permittee shall note any relevant observations that may affect water level measurements. The annual report shall include all field notes documenting the water level monitoring activities for the preceding year. All field notes shall be signed and dated by the personnel responsible for collecting measurements. All water level measurements shall be made to the nearest 0.01 foot increment by a person who can demonstrate by education or experience, competency in collecting hydrogeologic measurements. This requirement shall apply to the following locations:
 - a. Production well PW-2 and production well PW-3 - Water level measurements shall be recorded once every twenty four hours. The permittee shall also provide the operation schedule and withdrawal rate at each well. The withdrawal rate shall be recorded as total flow once every week using a flow meter installed at each well. The permittee shall provide the Department with a certificate of calibration for each meter and meter performance specifications as prepared by the manufacturer. The permittee shall also provide the Department with meter maintenance and calibration requirements as prescribed by the manufacturer. Meters shall be maintained and calibrated according to the manufacturer's specifications. The permittee shall maintain records of all meter maintenance and calibration activities and submit this information to the Department in the annual report.
 - b. Wetland piezometers PZ-1, PZ-2, PZ-3, and PZ-4 - Water level measurements at PZ-1 and PZ-2 shall be made once every twenty four hours. Water level measurements at PZ-3 and PZ-4 shall be made once every week. A wetland inventory and impact assessment shall be submitted to the Department within 30 days of the collection of data that indicate the groundwater withdrawals may

PW-2 = 20040001IWPW2
PW-3 = 20040001IWPW3

potentially adversely impact wetlands. For all major withdrawals, adverse impacts shall include a net loss of values for submerged lands under tidal and fresh waters and its wetlands as set forth in RSA 482-A. All work associated with a wetlands inventory and impact assessment shall be conducted under the direct oversight of a New Hampshire Certified Wetland Scientist.

- c. Monitoring wells TW-1, TW-10, TW-11, MW-1, MW-2, MW-3, MW-5, MW-2A, MW-3A, MW-4A, MW-5A, and MW-6A - Water level measurements shall be made once every week.
 - d. Permanent weir - A permanent weir shall be installed in the "unnamed creek". Flow measurements shall be made once every week. The permittee shall make a request to Department's Wetlands Bureau to amend the existing wetlands and non-site specific permit (file # 2002-00261) for the installation and maintenance of the proposed permanent weir.
4. Mitigation Requirements - In the event that adverse impacts occur, the permittee shall comply with the requirements of Env-Ws 387:19.
 5. Registered Water User - The permittee shall become a Registered Water User and maintain the water use reporting requirements of Env-Wr 700 at all times. Withdrawals PW-2 and PW-3 shall be continuously metered in accordance with Env-Ws 387.04(d)(1).
 6. Permit Renewal - The permittee shall apply for renewal of this permit at least 90 days prior to its expiration date in accordance with Env-Ws 387.04(d)(4). The permittee shall continue to comply with all conditions in this permit until the permit is renewed or the facility is closed in accordance with all applicable requirements, regardless of whether a renewal application is filed.



Harry T. Stewart, P.E.,
Director Water Division

Any person aggrieved by any terms or conditions of this permit may appeal in accordance with RSA 541 within 30 days.

DECISION STATEMENT
LARGE GROUNDWATER WITHDRAWAL PERMIT NO. LGWP 2004-0001
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The purpose of this Decision Statement is 1) To inform the public that pursuant to the provisions of RSA 485-C, the Granite Fields Golf Club (GFGC) has been issued a permit to withdrawal up to 48,960 gallons of water over any 24-hour period from irrigation well PW-2 and up to 82,080 gallons over any 24-hour period from irrigation well PW-3, for a combined withdrawal volume of 131,040 gallons over any 24-hour period; and 2) To summarize the regulatory process and considerations that occurred as part of the Large Groundwater Withdrawal permitting process in accordance with New Hampshire Administrative Rule Env-Ws 387, *Minor Groundwater Withdrawal*.

Should anyone have any comments or questions pertaining to this Large Groundwater Withdrawal Permit, please contact Tim Nowack at 271-8866 or tnowack@des.state.nh.us. Below is a summary of events that took place during the permitting process.

Preliminary Permit Application

A withdrawal of groundwater that exceeds 57,600 gallons over any 24-hour period from a wellhead installed after July 31, 1998 requires a Large Groundwater Withdrawal Permit. On August 7, 2002, GS Environmental and Groundwater Associates, Inc. (GS Environmental), on behalf Jim Dufresne of the GFGC, submitted a preliminary permit application to the New Hampshire Department of Environmental Services (DES) for a Large Groundwater Withdrawal Permit titled "Preliminary Minor Large Groundwater Withdrawal Permit Application", dated June 2002. The permit application requested a withdrawal of up to 131,040 gallons of groundwater from two gravel irrigation wells, designated PW-2 and PW-3, located on the GFGC property. The preliminary permit application also included a description of the proposed withdrawal, and the results of the recent hydrogeologic testing that had been completed at the site.

Public Notification

In accordance with the provisions of RSA 485-C:21, public water suppliers and municipalities located within the study area of the proposed withdrawal must be notified of the Large Groundwater Withdrawal Permit application. There are no public water suppliers and one municipality, Kingston, located in the defined study area. The Kingston Planning Board was notified of the project by receiving a copy of the preliminary application. In a letter to DES dated September 25, 2002, the Kingston Planning Board confirmed receipt of the preliminary application on September 24, 2002 and in the same work session, voted to request a public hearing be conducted regarding the permit application pursuant to RSA 485-C:21, III. DES received a letter from Gene Schragger of GS Environmental dated October 7, 2002 confirming public notification advertisements in two area newspapers, the Portsmouth Herald and the Manchester Union Leader, for the public hearing at 7:00 PM on October 22, 2002 at the Kingston Town Hall in accordance with RSA 485-C:21, IV.

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Public Hearing

Pursuant to RSA 485-C:21, IV, DES held a public hearing at 7:00 PM on October 22, 2002 at the Kingston Town Hall concerning the GFGC Large Groundwater Withdrawal Permit application. The meeting commenced with an overview of the Large Groundwater Withdrawal permitting process, presented by DES, and a project summary provided by GS Environmental and Wetlands Preservation, Inc., representing GFGC. Following the project summary, the public hearing was opened and public testimony was provided and recorded. After the hearing was closed, the remaining time was used as an informal question and answer period. At the close of the meeting, the public was invited to participate in the permitting process by adding their names to a Project Contact List. Persons on the Project Contact List received periodic updates including written responses to oral testimony, written responses to public comments received during the subsequent 45-day public comment period, interim written communications and a copy of this Decision Statement. Oral testimony and written public comments were incorporated into a DES review of the preliminary application and, where appropriate, were used as a basis to modify the proposed withdrawal test program.

Permit Application

A revised permit application titled "Large Minor Groundwater Withdrawal Permit Application", dated October 2003, was received at DES October 20, 2003. The permit application includes results of a withdrawal test program conducted by GS Environmental at the GFGC facility from May 2, 2003 to June 2, 2003. As required by Env-Ws 387.08(b), the objectives of the testing program are to: 1) Demonstrate production of the maximum withdrawal volumes requested; 2) Identify impacts from the withdrawal at the wellhead; 3) Verify that the withdrawal will not result in adverse impacts under 180-days of continuous operation at the maximum volumes requested in the permit application; and 4) Provide data to justify the use of any alternative methods for the testing program, study area definition, or predicting impacts from the withdrawal.

It is reported that continuous antecedent or background data were collected at several wells prior to initiating the pumping portion of the withdrawal test. Data were also collected during and after the pumping portion of the withdrawal test. Antecedent data collection began on May 2, 2003 at a residential dug well, identified as the _____ well, located at _____ in Newton, New Hampshire and at a residential bedrock well, identified as the _____ well, located at _____ in Kingston, New Hampshire. One additional antecedent monitoring point is an onsite monitoring well, designated MW-5, located in the southern portion of the site. MW-5 was monitored beginning May 24, 2003.

Conclusions supported by data and technical analysis demonstrate the following: 1) The pumping portion of the withdrawal test program was conducted over a 4-day period beginning on May 30, 2003 and ending June 3, 2003. During the pumping portion of the test, irrigation well PW-3 was pumped at a rate of 59 gallons per minute (or 84,960 gallons per day) and PW-2 was pumped at a rate of 34 gallons per minute (or 48,960 gallons per day) beginning 48-hours after

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the pumping at PW-3 was initiated. Both PW-3 and PW-2 reached stabilization based on criteria contained in Env-Ws 387.08(h)(1); 2) The withdrawal test did not significantly affect drawdown beyond a distance of approximately 250 feet from PW-3 based on a distance-drawdown graphic analysis as shown on Figure 5: Figure 28, titled "180-Day Drawdown Map", indicates that drawdown after 180 days of continuous pumping at maximum volumes without recharge extends to portions of a wetland area in the vicinity of PZ-1, PZ-2, portions of the unnamed creek, and portions of the abutting property to the north of GFGC property; 3) Relatively small changes in water levels at the unnamed creek observed during the withdrawal test may primarily be the result of precipitation that occurred during the test; 4) Relatively small changes in water levels observed during the withdrawal test at wetland piezometers PZ-1 and PZ-2 may primarily be the result of precipitation that occurred during the test; 5) No detectable effect due to the pumping of the irrigation wells PW-3 and PW-2 was observed at representative residential wells, consisting of both bedrock and shallow unconfined (dug) wells. Under long-term seasonal pumping conditions, these wells are not likely to be affected.

Large Groundwater Withdrawal Permit

DES has issued a Large Groundwater Withdrawal Permit No. LGWP 2004-0001 (Withdrawal Permit) to Granite Fields Golf Club for the withdrawal of 48,960 gallons of groundwater over any 24-hour period from well PW-2 and 82,080 gallons over any 24-hour period from well PW-3, located at the GFGC facility in Kingston, New Hampshire. The Withdrawal Permit is issued for a ten year period beginning on April 20, 2004. Conditions have been included in the Withdrawal Permit to 1) confirm withdrawal test program results and conclusions, and 2) assess the potential for long-term impacts to wetlands, the unnamed creek, and abutting property to the north of GFGC property. These conditions require the permittee to establish a water level monitoring and reporting program at the following locations: production wells PW-2 and PW-3; wetland piezometers PZ-1, PZ-2, PZ-3 and PZ-4; and monitoring wells MW-2A, MW-3A, MW-4A, MW-5A, MW-6A, located within the abutting property to the north of GFGC property and TW-1, TW-10, TW-11, MW-1, MW-2, MW-3, and MW-5, located on GFGC property. As part of the water level monitoring program, an annual report summarizing the water level monitoring program including all field data collected, will be submitted to DES by January 31 of each year. This annual report will be made available to the public for review.

Permit Appeal

Any person aggrieved by any terms or conditions of this permit may appeal in accordance with RSA 541 within 30 days.