Reviewing Archaeological Resources & Historical Structures for Loan Applications

by Elizabeth Walker

So what's up with archaeological and historical structures when applying for a Drinking Water State Revolving Fund (DWSRF) loan? To receive funding, water systems are required to show that they will have no effect on potential archaeological resources or historic structures.

How does a system go about showing no effect? The Vermont Water Supply Division (WSD) signed a Memorandum of Understanding with the Vermont State Office for Historic Preservation (SHPO) to streamline this process. The process begins with an Archaeological Resource Assessment (ARA). VRWA has a contract with WSD to hire archaeologists to do the ARAs and in some cases the need for doing an ARA can be waived if there are special circumstances as listed in the MOU.

The general philosophy is to do an ARA early enough in the process so that if an area is designated sensitive, alternatives can be suggested to avoid those areas. If an area within the project is considered sensitive and can’t be avoided, a Phase I assessment project at Middlebury. site identification study or Phase I archaeological survey is undertaken.

A Phase I survey may involve re-plowing an area if it is already in agricultural production and walking over the surface after sufficient rainfall has occurred to expose artifacts. Artifacts are then mapped and collected to define the site area.

Alternatively, Phase I testing can also involve excavating 50 x 50 cm (2 ft x 2 ft) test pits by hand at 10 meter intervals within the sensitive portions of the

Available Resources for Water & Wastewater Systems

by Wayne Graham

In these days of tight budgets and even tighter time constraints, it is good to hear about extra resources available to our systems. The Environmental Assistance Office of DEC helps municipalities, permit applicants and small businesses comply with environmental regulations, obtain permits, and minimize pollution.

The Environmental Assistance Office is divided into 4 sections:

The Pollution Prevention Program minimizes environmental impacts of pollutants by helping systems reduce or eliminate waste byproducts. This experienced staff can assist municipalities and companies in creating safer and healthier workplaces, reducing mandatory regulations and creating more efficient operations.

Since 2001, the Municipal Compliance Assistance Program has helped municipal officials comply with the many environmental regulations that apply to their operations. This group will train officials to properly manage wastes, comply with hazardous waste rules, be knowledgeable about fuel storage requirements, and to follow best management practices for stormwater discharges.

The Permitting Assistance section uses Permit Specialists to make the state's permitting process much easier to understand for the public and private sectors. Knowing about all of the required permits can avoid costly delays.

Continued on page 4.
Who We Are
Since 1982, Vermont Rural Water Association has supported water and wastewater systems across the state. We provide many services, including training, source water protection planning, and onsite assistance.

Board of Directors
Richard Desautels, Colchester FD#2
Ed Savage, Town of West Rutland
Gilles Blais, International Water Company
Rod Lamothe, Castleton Meadows
Joe Voci, Town of Randolph

187 St. Paul Street
Burlington, Vermont 05401-4689
802-660-4988; 802-660-4990 fax
vrwa@vtruralwater.org; www.vtruralwater.org

Contact Our Staff
For onsite assistance and training, contact our technical staff at 800-556-3792 (extensions below):
Brent J. Desranleau, Water Systems Specialist
Ext. 322, bdesranleau@vtruralwater.org
Shaun Fielder, Program Coordinator
Ext. 315, sfielder@vtruralwater.org
Wayne Graham, Wastewater Specialist
Ext. 319, wgraham@vtruralwater.org
Eric Hanson, Source Protection Specialist
Ext. 327, ehanson@vtruralwater.org
Paula Jackson, Water Systems Specialist
Ext. 332, pjackson@vtruralwater.org
Erik Peterson, Water Systems Specialist
Ext. 331, epeterson@vtruralwater.org
Liz Royer, Source Protection Specialist
Ext. 336, lroyer@vtruralwater.org
Elizabeth Walker, Water Systems Specialist
Ext. 321, ewalker@vtruralwater.org

Publication Staff
Sarah MacMillan, Melissa Green and Katie Maurizi.

News Leaks is the official publication of VRWA. It is published quarterly for distribution to operators, owners, managers and board members of water and wastewater systems in Vermont, as well as to association members, water and wastewater service providers, regulators, and other friends. Opinions expressed in the newsletter do not necessarily reflect the views and policies of VRWA.

For advertising rates and submission criteria, please call 800-556-3792. We reserve the right to reject advertising deemed unsuitable. Acceptance of advertising does not constitute endorsement of the advertiser's products and services, nor do we make any claims or guarantees as to the accuracy or validity of the advertiser's offer.

©2006 Vermont Rural Water Association.

Letters
I would like to drop you a line to thank VRWA for the job well done by Wayne Graham. He helped put the Emergency Action Plan together for the town of Pittsford.

I saw Wayne’s knowledge at work and I am sure he will be a great person to have working with Vermont Rural Water Association. Again, thank you for your help.

Robert Berardo, Chief Operator, Town of Pittsford

I am writing this letter concerning Vermont Rural Water Circuit Rider Brent J. Desranleau, Water Systems Specialist. We, the Newbury Village Water Department, have worked closely with Brent Desranleau for the last 4 years. Our system originated in 1915 and due to its age, we frequently have problems with leaks. Brent’s knowledge and dedication have kept any impact of these leaks to a minimum.

In the past 3 years, the frequency of these leaks has increased significantly. Brent’s positive attitude and willingness to serve has proved to be invaluable during these times of dire need. One example of his dedication was a midnight rendezvous in an attempt to find an elusive leak. Brent knew from his working background that the reduced water flow of the midnight hour would allow us to locate an otherwise undetectable leak.

He has also helped us in preparation to planning a new distribution by mapping out the exact location of the existing lines and customer supply lines. He has taken a sincere interest in the planning phase of our major system renovation and we have found his input to be very helpful.

To sum it up, Brent, along with the Vermont Rural Water Association he represents, has been very accommodating to meet our specific needs. I’m not really sure what our system would do without their support, and hope I never have to seriously consider the options. I am confident there are many communities in the state that depend on this support to keep water flowing.

Jeffrey A. McKelvey, Newbury Village Water Department

VRWA Staff

News Leaks, Summer 2006
Annual Conference a Hit

On May 17-18, VRWA hosted its 2006 Annual Conference at the Lake Morey Resort in Fairlee, VT. A crowd of 230 filled the sessions on energy efficiency, trench safety, upcoming regulations, bypass pump operation and wastewater toxicity upsets. The exhibit area featured 51 exhibitors and a wide range of products on display for examination by the attendees.

During the lunch, Don Kittell of the Town of East Fairfield was honored with the Tony Torchia Award for his outstanding contributions to the water/wastewater industry. Don has worked for East Fairfield for 38 years, first as a volunteer and later for a small stipend. His concern for the community’s water quality is legendary and protecting the public’s health was always his top priority.

A wide mix of operators, managers, support staff, vendors and regulators enjoyed some rare sunshine during the day. The rain even held off until after the golf tournament on May 17! For more photos from our annual event, visit www.vtruralwater.org.

We hope to finalize a date in May 2007 for next year’s show. Thanks very much to our exhibitors and attendees for contributing to another great day!

Welcome New Board Members

Election results are in, and VRWA is very happy to introduce our two new board members, Joe Voci from the Town of Randolph and Rod Lamothe of Castleton Meadows.

Joe has worked in the industry since 1993 and is currently Randolph’s Director of Public Works. Joe brings a great deal of experience and enthusiasm to the board and we are lucky to have him.

Rod currently operates three small water systems (Castleton Meadows/East Point Properties, Clara Martin Center and Vermont Technical Enterprise Center) and has served as the President of Scitest, Inc., a testing laboratory, since 1987. Many of you know him through his participation in VRWA’s training programs.

Hunting & Fishing License Raffle

We will be raffling one Lifetime Vermont Hunting & Fishing License during the summer. Tickets are $10 each and only 200 will be sold. The drawing will be held on August 1, so ask a staff member or call us at 800-556-3792 to secure your tickets! The winner must be a resident of Vermont.

Eric Hanson Joins VRWA

Eric Hanson joined VRWA as a Source Protection Specialist on June 5. Eric is a hydrogeologist who has worked in Vermont for more than 20 years, most recently for Pioneer Environmental Associates.

Eric replaces Kevin McGraw, who has decided to pursue a new opportunity after four years of source water protection planning with VRWA. We wish Kevin all the best!

CONCERNED ABOUT ELECTRICITY COSTS AT YOUR FACILITY?

Take these steps to save money and energy at your plant:

• Use NEMA premium efficiency electric motors for pumps and processes.
• If your plant is only running at partial capacity, consider installing variable frequency drives on pumps and aeration motors for significant energy savings.
• Implement automated control strategies for ultraviolet disinfection systems and plant motor operations to reduce total electric loads.

To learn more visit www.efficiencyvermont.com or call 1-888-921-5990

Energy Efficiency Fact: Typically more than 55% of a wastewater plant’s energy use is for aeration.
project area. The excavated soil is screened through ¼ inch hardware cloth screens to allow recovery of the artifacts. If a project is located in a flood plain, archaeological testing may also involve trenching with a backhoe to reveal the depth of the archaeologically sensitive sediments.

Historic structures that are 50 years old or older are another important aspect of the review process. Although not often an issue on water projects, the recently built Windsor water system had two storage tanks that were eligible for the State and National Registers of Historic Places. Although their eligibility did not preclude taking them down, thorough documentation was required.

Recently, Jackie Carr from WSD, Scott Dillon, the State Survey Archaeologist, and myself made a site visit at Middlebury and East Middlebury projects to review the Phase I work taking place. The University of Maine at Farmington Archaeological Research Center was doing the work. On the Middlebury project, a portion of the waterline project in a farm field was plowed for the purposes of surface collection and another section was being tested by sifting materials from test holes.

During our visit, a flake of stone was found that was a waste product from making a stone tool such as a spear point or arrowhead. This artifact is not significant by itself but if other artifacts or deposits such as fire hearths or storage pits are identified, more site evaluation testing beyond the Phase I level may be required.

Archaeological review and documentation of historic structures have not prevented any water projects in Vermont from moving forward. However, historic sites review can add significant cost to an overall project, particularly if not addressed early in project planning. The additional costs are eligible for funding through the DWSRF loan program. If you have any questions concerning this process, contact me at ewalker@vtwater.org or 800-556-3792 ext. 321.

The Small Business Compliance Assistance section provides a no-cost consultation service for the private sector. Onsite assessments, regulatory assistance and workshops are just a few of the available services to small businesses.

The Environmental Assistance Office can be contacted by calling 802-241-3589 or on the web at www.eaovt.org.
AAPs
Accepted Agricultural Practices

In 1995, the Vermont Agency of Agriculture created a comprehensive program to reduce agricultural non-point source pollution. The resulting Accepted Agricultural Practices are a set of rules designed to reduce non-point pollutant discharges through implementation of improved farming practices.

These practices must be technically feasible as well as cost effective for farmers to implement without government financial assistance. AAPs are intended to reduce, not eliminate, pollutants associated with agricultural operations such as sediments, nutrients and agricultural chemicals. AAPs are basic practices that all farm operators must follow as part of their normal operations. The Vermont Agency of Agriculture filed a proposed update to the rules with the Secretary of State on March 14, 2006. This proposal includes additional provisions for groundwater protection.

Regarding public water systems, the AAPs address two main types of agricultural sources of groundwater contamination: animal waste (source of pathogens and nitrate) and pesticides/fertilizers.

Some original requirements of the Accepted Agricultural Practices include:

- Management of barnyards and manure storage structures to prevent the discharge of manure or other wastes.
- Standards for manure stacking and prohibitions on manure stacking on land subject to overflow from adjacent waters.
- A prohibition on manure application between December 15th and April 1st.
- Buffers of perennial vegetation where there is sheet flow or channelized flow of runoff from farm fields.

In the introduction to the proposed AAPs, part (iii) includes language referring to water systems:

Public Drinking Water Supplies: Nutrients, sediment, organic matter and microorganisms may also impact drinking water supplies derived from surface waters. Agricultural operations should be aware of the locations of surface drinking water source intakes and appropriately manage agricultural activities to reduce potential negative impacts.

AAP requirements that specifically address groundwater and surface water protection include:

4.01 (b) Barnyards, manure storage areas, animal holding areas and production areas shall be managed or controlled to prevent runoff of wastes to adjoining waters, groundwater or across property boundaries.

4.02 (a) Manure stacking sites, fertilizer storage and other nutrient source storage shall not be located within 100 feet of private wells unless it can be demonstrated to the Secretary that there is no suitable alternative site or if the private well is in a location that is inconsistent with state law or regulation. Fertilizer may be stored within 100 feet of private wells provided it is stored in a structure that minimizes leaching and runoff potential. (*Note: This does not apply to public wells.)

4.02 (c) Manure shall not be field stacked on unimproved sites within 100 feet of surface water unless it can be demonstrated to the Secretary that there is no suitable alternative site.

4.03 (d) Manure shall not be applied within 10 feet of adjoining surface water or within 25 feet of adjoining surface water at points of runoff, or applied in such a manner as to enter surface water.

4.03 (g) Livestock shall not be pastured within 50 feet of a private well without the permission of the well owner nor shall application of manure occur within 50 feet of a private well unless there is a legal document which provides for a different isolation distance or when a private well is in a location that is inconsistent with state law or regulation. (*Note: This does not apply to public wells.)

4.05 (b) Animal mortalities buried on farm properties shall be sited so as to be: (i) at least 150 feet from property lines, wells, and surface water. (ii) at least 3 feet above seasonal high water table.

4.05 (c) Animal mortalities composted on farm properties shall be sited so as to be: (i) at least 100 feet from property lines, wells, and surface water. (ii) not on land subject to annual overflow from adjoining surface waters.

In addition to setback requirements, the new AAPs have two full two pages addressing groundwater quality issues (Section 4.08 Ground Water Quality). Highlights of this section include:

- Farm operations have to be conducted so that primary and secondary groundwater enforcement standards are not reached or exceeded.
- Farm operations have to be conducted with the goal of reducing concentrations to preventive action levels when monitoring indicates that primary and secondary groundwater enforcement standards have been reached or exceeded.
- Authority is granted for the Secretary of Agriculture to conduct groundwater investigations under various circumstances.
- Authority is granted for recommending changes to nutrient management plans if contamination is found. (Note that while the AAPs only allow the Vermont Agency of Agriculture (VAA) to recommend changes to nutrient management plans, the MFO and LFO permitting programs (see page 7) grant VAA authority to require changes in response to contaminant detections.)

Continued on page 7.
by Shaun Fielder

VRWA Directors traveled to Washington, DC this past spring to meet with Vermont’s congressional delegation. The purpose of our visits to the offices of Senator Leahy, Senator Jeffords, and Representative Sanders was to promote the need for and value of Rural Water’s programs. These visits were successful, as a majority of our delegation signed on to the letters of support for Rural Water funding that are circulated in Congress each year.

Your letters of support were a discussion point during these meetings. These letters explaining how VRWA has assisted your system provide the best examples of how we are helping systems at the grassroots level. If we’ve helped you out during the last year, please continue your membership and consider sending us a letter of support.

VRWA visits our legislators in Washington, DC this March. From left to right: Shaun Fielder, Dick Desautels, Senator Leahy, Ed Savage, Gilles Blais.
**BMPs**

Best Management Practices

Best management practices are site-specific, on-farm remedies implemented either voluntarily or as required in order to address water quality problems and in order to achieve compliance with state water quality standards. The goal of BMPs is to reduce the amount of agricultural pollutants entering surface and ground waters. These regulations went into effect on January 27, 1996.

BMPs have been determined to be an effective and practical means of reducing point and non-point source water pollutants at levels compatible with environmental quality goals. The primary purpose for implementation of BMPs is to conserve and protect soil, water and air resources.

BMPs for dairy farms are a specific set of practices used by farmers to reduce the amount of soil, nutrients, pesticides and microbial contaminants entering surface or groundwater while maintaining or improving the productivity of agricultural land.

One example of a BMP is filter strips, which are strips of grasses or other close-growing vegetation planted around fields and along drainage ways, streams and other bodies of water. They are designed to reduce sediment, organic material, nutrients and chemicals carried in runoff. They do this by slowing the speed of water runoff, allowing contaminants to settle out.

Other examples of BMPs include fences, prescribed grazing, roof runoff management, waste management systems, waste storage facilities, conservation tillage practices, riparian forest buffers and streambank and shoreline protection. The federal Environmental Quality Incentive Program (EQIP), along with state dollars, provides the bulk of technical and financial assistance for farmers planning to install manure pits and other BMPs.

**LFOs & MFOs**

Large Farm Operations & Medium Farm Operations

The regulations governing medium farm operations (MFOs) and large farm operations (LFOs) use the AAPs as a starting point and build in further standards such as nutrient management plans and engineering standards for waste management structures.

Vermont’s Large Farm Operation Program is targeted at farms that fall under the Environmental Protection Agency’s Concentrated Animal Feeding Operation rules. A farm’s designation as an LFO is chiefly judged by the number of animals it houses. Those farms must comply with certain rules of operation. The LFO regulations went into effect on November 23, 1999.

A permitting process has been developed to prevent direct discharges of waste or nutrients into waterways and to ensure that these farms reasonably manage their waste nutrients during land application. There are currently 18 permitted LFOs in Vermont.

The State of Vermont is in the process of forming its own program to govern medium-sized farms. The program will be in compliance with federal standards and should help farmers adhere to AAPs and reduce the amount of nutrients that find their way into Vermont waterways.

New rules intended to curb pollution from MFO farming activities have been proposed by the Vermont Agency of Agriculture (VAA). These rules are expected to take effect in 2006.

So far, 146 farms have been identified as MFOs in the state of Vermont. VAA will work with medium farms to ensure that they do not have an improper waste discharge system and that nutrients are properly managed.

Both LFOs and MFOs are defined by the number of animal units confined in a non-vegetated area more than 45 days per year. There are guidelines for many species, some of which are shown here:

<table>
<thead>
<tr>
<th></th>
<th>LFO (large farm)</th>
<th>MFO (Medium Farm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mature Dairy Cows</td>
<td>&gt;700</td>
<td>200-699</td>
</tr>
<tr>
<td>Swine over 55 lbs.</td>
<td>&gt;2500</td>
<td>750-2,499</td>
</tr>
<tr>
<td>Horses</td>
<td>&gt;500</td>
<td>150-499</td>
</tr>
<tr>
<td>Sheep/Lambs</td>
<td>&gt;10,000</td>
<td>3,000-9,999</td>
</tr>
<tr>
<td>Turkeys</td>
<td>&gt;55,000</td>
<td>16,500-54,999</td>
</tr>
</tbody>
</table>

More acronyms will be explained in our next issue, including CREP, CRIP, EQIP, and NMP!
VRWA Raffle

Prize: One Vermont State Lifetime Hunting & Fishing Combined License

Only 200 tickets available!

Cost: $10/ticket

To purchase a ticket, ask a member of our staff or call 800-556-3792.

Drawing will be held on August 1, 2006 or earlier if all tickets are sold. Proceeds benefit the VRWA Equipment Fund.

Restrictions: Winner must be a resident of Vermont. Winner does not need to be present in order to win. VRWA employees, board members, and their immediate families are not eligible to enter.