Town of Weare, New Hampshire
Source Water Protection Plan

Prepared by the Southern New Hampshire Planning Commission
For the Town of Weare

April 2011

Funding provided by the NH DES Source Water Protection Program

This Plan was completed in April 2011 and includes the Zoning Ordinance Amendment that was adopted by the Town of Weare at the March 2011 Town Meeting

Adopted by Planning Board:

_____

Signature of Chair and Date

Record of Plan Updates:

This Plan should be Reviewed Annually
and Updated Every Three Years

Date Reviewed	Changes or Comments

Photo on front cover is of Horace Lake, Town of Weare

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I. INTRODUCTION

The primary goal of this Source Water Protection Plan is to protect groundwater that is used or may be used as a source of drinking water in Weare. It provides the town with data, maps, guidance, priorities and actions to protect the town's groundwater (aquifers) and public drinking water sources from contamination. It serves as an informational tool and action plan for town officials, developers, and residents.

A source water protection plan typically identifies all of the public water well systems (here after referred to as "systems") and land uses that may use substances that have the potential to contaminate drinking water. It suggests actions to contaminating surface or groundwater used as a source of drinking water. A public system is defined as:

> "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 twenty-five individuals daily at least 60 days out of the year" (Chapter Env-ws 300 NH Drinking Water Rules).

All water supplies (public or private) in Weare rely upon clean groundwater, one of New Hampshire's and Earth's most valuable resources. Groundwater, along with many rivers, lakes and reservoirs serve as public and private sources of drinking water, e.g. "source water." If groundwater used by public water supplies becomes contaminated, it may then be unsafe to drink or require additional, costly treatment in order to safe and protect public health.

This plan will contain the following components:

- An overview and inventory of the public water supplies
- An inventory of land uses considered potential contamination sources (PCSs)[1]
- An assessment of risks posed by PCSs
- A review of the town's master plan, zoning ordinance, and site plan regulations with regard to protection
- Recommendations for the town's master plan, zoning ordinance, and site plan regulations to preserve source water

The plan is a working document that should be reviewed annually and updated every three years to remain current. It will ultimately lay the groundwork to provide a future reference for over all better management of PCSs and public systems in the town of Weare.

[1] RSA 485 C-7 defines Potential Contamination Sources (PCS) as human activities or operations upon the land surface shall be considered potential contamination sources if the activity or operation poses a reasonable risk that regulated contaminants may be introduced into the environment in such quantities as to degrade the natural groundwater quality. Table 3 lists examples of all PCSs.

II. DESCRIPTION OF WATER SYSTEMS

A. PUBLIC WATER SYSTEMS

NH DES indicates that there are currently 30 active public water supply systems located within the Town of Weare (See Table 1).

To make this plan as effective as possible, each public water system's owner/operator was contacted to inform them of the plan. Basic data was then collected about the wells and each site was photographed. Learning more about the wells, who they serve, and the area contributing water to each well, enables this plan to make a more informed judgment concerning protection measures for existing public water supplies in town.

To accurately develop this plan, the Town of Weare established a Source Water Protection Plan Advisory Committee (here after referred to as "the committee") to work in conjunction with SNHPC. The committee, comprised of town and school officials, gathered information, checked accuracy, and assisted with the final editing of the plan.

The committee also recommended that an additional 11 quasi-public drinking water wells located within the Town of Weare that do not meet the state definition of a public water supply system, be included in this plan (see Table 2).

Table 1
NH DES One Stop Data and Information Identified Public Water Systems

No# Wells	ID No#	Name	Population Served
1	2457030	All Seasons Condominiums	325
2	2457030	All Seasons Condominiums	325
3	2457030	All Seasons Condominiums	325
1	2457060	Autumn Hills Campground	280
2	2457060	Autumn Hills Campground	280
1	2455060	Center Wood Elementary School	650
2	2455060	Center Wood Elementary School	650
1	2458040	Colburns Country Store	100
1	2457080	Cold Springs 3/West	250
1	2457020	Cold Springs Campground	118
1	2457070	Cold Springs Campground/PH	657
1	2452040	Collins Landing Condominiums	180
2	2452040	Collins Landing Condominiums	180
1	2455070	Country Kids Childcare	60
2	2458030	Country Three Corners	300
3	2456010	Granite State Telephone	54
3	2455040	John Stark Regional High School	949
1	2455040	John Stark Regional High School	949
2	2453020	Kuncanowet Hills Mobile Home Park	103

1	2453020	Kuncanowet Hills Mobile Home Park	103
3	2458010	Lakeshore Village Resort	75
4	2458010	Lakeshore Village Resort	75
1	2458870	Lanctots Center	25
1	2452010	PEU/Daniels Lake	70
2	2458090	Pick Me Up Coffee and Donuts	200
1	2452030	South Weare Water	200
2	2452030	South Weare Water	200
3	2452030	South Weare Water	200
2	2453010	Sugar Hill Manor Mobile Home Park	98
4	2453019	Sugar Hill Manor Mobile Home Park	98
6	2453010	Sugar Hill Manor Mobile Home Park	98
1	2459010	Town Offices	65
1	2458060	Weare Center Plaza	90
1	2455080	Weare Middle School	500
2	2458080	Weare Towne Grille	54

NH DES OneStop://www.2.des.state.nh.us

The United States Environmental Protection Agency (US EPA) has created three different categories for public water systems:

- Community Systems: 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;

- Non-Transient/Non-Community Systems: A public water system designed to serve at least 25 people for at least 6 months per year. Examples include day care, schools, and commercial property: and

- Transient/Non-Community Systems: A public water system designed to serve at least 25 people, for at least 60 days per year. Examples include restaurants, campgrounds, motels, recreational areas and service stations.

NH DES provides more detailed information on potential contamination vulnerabilities in assessments produced for certain public water systems in Table 1. See Appendix A of this plan which provides a copy of the NH DES Source Water Assessment Report prepared for the Town of Weare in 2002.

The 11 additional wells that were identified by the Advisory Committee listed in the following Table 2 are not officially categorized as a public water supply system since they do not meet the above criteria. However, because these wells are available as a source of drinking water to the public, the committee believed that they are important and as such also need to be protected.

Table 2
Weare Source Water Protection Committee Identified Quasi-Public Wells

1	Alma Shmid Apartments
2	American Legion Post #65
3	CJ Bolton Inc.
4	Mom's Pasties
5	Post Office
6	TD Bank North
7	Weare Center Store
8	Weare Fire Station (East)
9	Weare Fire Station (South)
10	Weare Library
11	Weare Safety

SNHPC

B. WELLHEAD PROTECTION AREAS

A Wellhead Protection Area (WHPA), as defined by the US EPA is:

> "The surface or subsurface area surrounding water well or well field supplying a public water system, through which contaminants are reasonably likely to move toward and reach such well or well field". (US EPA, 1987)

A WHPA must be delineated for all new Community and Non-Transient/Non-Community system wells. NH DES recommends that towns focus on working with local businesses to properly manage and minimize the release of harmful contaminants to groundwater and potentially to a public water supply well.

There are 17 designated WHPAs located within the Town of Weare. These WHPAs are mostly associated with bedrock wells. The WHPA for bedrock wells are circular and extend outward up to a maximum radius of 4,000 feet from the well. The size of the WHPA depends upon the well's production volume as designed and/or reported to NH DES. Public water supply wells may share a WHPA if they are very close to one another, which is one of the reasons there are only 17 WHPAs for the identified 30 active public water supply system wells located within the Town of Weare.

A map showing all of Weare's WHPAs can be found in Appendix of this plan. WHPAs define a clear boundary within which certain high risk activities should be limited and harmful substances actively managed to avoid potential release and contamination of the underlying aquifer or drinking water supply.

WHPAs basically define for each public water system, the area within which best management practices (BMPs) should be employed primarily for those activities that may use regulated substances and have the potentially to contaminate drinking water. Few land use restrictions exist within WHPAs for public water supplies, emphasizing the need for good management practices.

III. AQUIFERS

Aquifers, much like wetlands, serve as a storage area for water. An aquifer can consist of underground geologic deposits, such as sand and gravel, or it can be fractured bedrock, but it must be able to store and allow the movement of water (transmissivity). Aquifers are places where groundwater can be extracted using a water well. Aquifer transmissivity is defined as a hydraulic property, which measures the ability of the aquifer to transmit ground water throughout its entire saturated thickness.[2] Map 2 in the Appendix of this plan shows the aquifer transmissivity for the Town of Weare.

Because of their porosity of subsurface materials and location along lake or river bank areas that are prime areas for development, stratified drift aquifers are susceptible to contamination. Typical contamination sources can include leaky septic systems, poorly maintained underground storage tanks and improper disposal of oil, gas and other regulated substances and hazardous materials. Since aquifers are the source for well drinking water; it is critical that these aquifers are protected from contamination

The U.S. Geological Survey (USGS) has identified multiple high-yield aquifers within Weare. These aquifers are located within the lower part of the Piscataquog River, south of Sargent Road into Weare, North of Gould Road in the Daniels Lake area, and in North Weare between Woodbury Road and Rockland Road. In addition to the large aquifers there are also several medium-yield aquifers that have potential to be large-yield aquifers. Like the high-yield aquifers these smaller ones are just as important and require just as much protection.

Stratified-drift aquifers are composed of coarse to fine consolidated glacial meltwater deposits typically found adjacent to or within the basins of major streams and rivers. Stratified drift aquifers in many municipalities are the principal high yielding aquifers for community water well systems.

In 1990 and 1995, the U.S. Geological Survey produced two significant groundwater studies available at the following website: http://pubs.usgs.gov/wri/wrir_92-4192/html/pdf.html. These are:

> "**Geohydrology and Water Quality of Stratified-Drift Aquifers in the Exeter, Lamprey, and Oyster River Basins, Southeastern New Hampshire"** (1990);
>
> **"Geohydrology and Water Quality of Stratified-Drift Aquifers in the Middle Merrimack River Basin, South-Central New Hampshire"** (1995).

Municipalities may use existing USGS Technical Studies and the more recent surficial geologic maps prepared by NH Geological Survey (part of NH DES) as a basis for municipal groundwater and aquifer protection ordinances. According to the Aquifer Transmissivity map in the Appendix of this plan, the majority of Weare's aquifers have a

[2] Encyclopedia of Water Science, Mohamed Hantush.

transmissivity level of under 1000 feet squared per day. The aquifers are located primarily within the central and north east side of town. Centrally located within the town are higher yield aquifers with transmissivity levels of about 2000 to 4000 feet squared per day.

IV. GROUNDWATER CONTAMINATION

A. BACKGROUND

The New Hampshire Department of Environmental Services (NH DES) estimates that 70 to 75 million gallons of groundwater are used for drinking water in New Hampshire per day and approximately 60 percent of the residents in the state rely on groundwater for their drinking water.[3] Groundwater also provides an estimated 40 percent of the total flow in New Hampshire's rivers, which in turn feed the state's lakes, reservoirs, and estuaries.[4]

In New Hampshire, natural contaminants such as arsenic and radionuclides (radon, uranium, radium and gross alpha), are known to occur in a significant percentage of wells at concentrations that exceed health-based maximum contaminant limits (MCLs), particularly in bedrock wells under certain geologic conditions.[5] Because New Hampshire's groundwater can be somewhat corrosive, lead and copper from older plumbing are also detected in tap water. Anthropogenic (human caused) contaminants are also frequently detected in some areas, typically associated with certain land uses or previous contamination events.

The most common causes of groundwater contamination in New Hampshire are leaking underground storage tanks, mishandling of industrial chemicals, and urban runoff.[6] In addition, new health studies indicate t hat some natural contaminants (such as arsenic and manganese) may produce human health effects at concentrations at or below current health-based guidelines and criteria.

Contaminants can be found in groundwater and come from a variety of sources including infiltrated stormwater (e.g. road salt, oil/gasoline), leaking or malfunctioning septic systems, gas tanks/fluid transfers, vehicle washing/discharging, and hazardous waste transport and disposal. Groundwater can be contaminated when chemicals are spilled or discharged onto or into the ground. Liquids can flow through the ground into groundwater, and both solids and liquids can be flushed downward by rain and snowmelt. Once contaminants reach groundwater, they often move along with the flow of the groundwater often to a source of drinking water.

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[3] NH DES. Publication WD-10-12 (April 2010). Model Groundwater Protection Ordinance. Retrieved from: http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-06-41.pdf. pg. 1

[4] Ibid., pg. 1.

[5] NH DES. Private Well Working Group White Paper. (Revised August 2009). Pg. 1.

[6] NH DES. Publication WD-10-12 (April 2010). Model Groundwater Protection Ordinance. Retrieved from: http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-06-41.pdf. pg. 1

Many potential groundwater contaminants are in products used in homes, businesses, and public buildings served by private or publicly owned water wells. They are often odorless, tasteless, and colorless.

The only way to identify their presence is to have the water tested. Human exposure to contaminants in drinking water from private or public wells is a public health issue for a significant percentage of private and some public well users.[7]

Private well contamination is a significant issue as private wells and their related aquifers now serve a greater percentage of the state's population than they did in the past. This trend is likely to continue with more diffuse development patterns.[8]

This is true particularly for the Town of Weare as a majority of the residents and businesses within the community rely on ground water for their drinking water supply.

B. POTENTIAL AND KNOWN CONTAMINATION SOURCES (PCS & KCS)

Under the Groundwater Protection Act, the state legislature defined certain land uses as "potential contamination sources" (PCSs) to include certain activities that may affect human health or the environment. The statutory definition includes but is not limited to a list of certain activities. These activities are required to follow "best management practices" to minimize groundwater contamination.

To implement the legislature's intent, DES adopted rules (Env-Wq 401, Best Management Practices for Groundwater Protection) that specify simple, common sense standards to prevent the release of "regulated substances" defined under the BMP rule.

The following Table 3 includes the list of land use activities defined as PCSs under RSA 485-C. Many (but not all) of these land use activities may use, store or handle regulated substances and therefore must follow basic BMPs to minimize groundwater contamination.

The BMPs rules for groundwater protection are provided in Env-Wq 401 as well as Appendix G of the DES Model Groundwater Protection Ordinance, Revised April 2010. A copy of Env-Wq 401 is available from the NH DES Groundwater Protection Program.

[7] Ibid., pg.1.

[8] The term "private well" refers to a water supply well that does not serve a public water system. This plan only focuses on public water supply wells, but the issue of contamination is often similar.

Table 3
Potential Contamination Sources Defined Under RSA 485-C

Potential Contamination Sources (PCS)		
Vehicle Service and Repair shops	General Service and Repair shops	Metal Working Shops
Salt Storage and Use	Snow Dumps	Storm Water infiltration ponds or leaching catch basins
Manufacturing Facilities	Underground or above ground Storage Tanks	Cleaning Services
Waste and Scrap Processing and storage	Food Processing Plants	Transportation Corridors
Septic Systems (at Commercial and Industrial Facilities	Laboratories and certain professional offices (medical, dental, veterinary)	Use of Agricultural Chemicals
Fueling and Maintenance of Earth moving equipment	Concrete, asphalt, and tar manufacture	Cemeteries
Hazardous Waste Facilities		

(Source: NH DES WD-WSEB-12-3 NH Drinking Water Source Assessment Program Plan, May 1999, Appendix G.)

In addition to the PCS, the NH DES maintains a list of all known contamination sources (or KCS) within a community. These KCS sources include sites with where potential ground water contamination has occurred: hazardous waste generators; solid waste sites and above and below ground storage tanks. A summary of NH DES's list of all KCS located within the Town of Weare is provided in Appendix E.

C. PCSs WITHIN WELLHEAD PROTECTION AREAS

1. METHODOLOGY

In January 2009, the SNHPC conducted a "windshield" (visual drive by) survey to determine the location of all PCSs in Weare within wellhead protection area. SNHPC conducted a general assessment of each PCS site reviewing any obvious measures could be taken to prevent substances from being released to the ground. Windshield surveys were done with each of the WHPAs associated with public water systems. In conjunction with this windshield survey, SNHPC staff also completed a DES supplied Public Water System – Groundwater Source BMP form to document the PCS and the existence or non-existence of BMPs.

Each PCS identified in the windshield survey was then assigned a management level rating of low, medium, or high in terms of the required management of potentially contaminating substances and the potential impact of the PCS as a source of groundwater contamination. The management levels were determined by the site's proximity to the well, the size of the property, the general condition and management of the property. The threat management

ranking indicates the potential need for BMPs to be in place to minimize groundwater contamination.

PCS Location: The location of a PCS in relation to a public water supply well affects the threat management level assigned to it because the closer it is to the well, the easier it is for a spill to infiltrate and reach the groundwater used by the well. Features of the terrain, such as slope, are also considered in assigning threat management levels.

PCS Size and Storage of Regulated Substances: The size of the PCS activity and condition of storage tanks or containers affects the assignment of threat management levels for obvious reasons; the larger the quantity or amount of sources of contamination or regulated substances stored on a property, the greater the potential for a leak or spill. Storage tanks that are in poor physical condition and/or are not maintained regularly are more likely to break down or leak.

Handling Practices (and BMPs for regulated substances): Improper handling of regulated substances by people can also cause a spill. Ideally regulated substances should be stored and handled according to simple best management practices (BMPs), e.g. stored and transferred from one container to another over impervious surfaces such as concrete or asphalt. The reason for this is so that if there is a spill during transport, the regulated substances will not be able to seep into the ground and they can easily be cleaned up off of an impervious surface. BMPs pertain to regulated substances (gas, oil) require certain minimum practices defined under Best Management Practices for Groundwater Protection, Env-Wq 401. See http://des.nh.gov/organization/commissioner/legal/rules/documents/env-wq401.pdf.

The windshield survey is based only on general observations and did not include a detailed review of storage and handling conditions, something that would be required to make more specific conclusions about the need for BMPs.

2. VULNERABILITY ASSESSMENT

A preliminary vulnerability assessment follows based on the threat management needs identified in the previous section of each PCS. All of the specific threats identified as a result of the PCS Inventory are summarized in Table 4 and are shown on the maps in Appendix A. The PCSs indentified within the WHPA of each public water system are ranked as either “low”, “medium” or “high” in terms of their need to manage potentially contaminating substances and use BMPs based upon SNHPC’s best field judgment. Additional information was obtained through contact with landowners and operators of each active public water system. The results of SNHPC’s PCS Inventory and the assignment of threat management needs are found in the following Table 4.

Another source of vulnerability rankings in addition to this plan can be found within the NH DES Source Water Assessment Report prepared for Weare (see Appendix D). NH DES’s source water assessment reports, based on GIS analysis, consider proximity and density of certain land uses including, lagoons, animals, agricultural and urban land cover,

septic systems, pesticides, highways and railroad lines, and known chemical releases into the ground in relationship to the public water system.

Table 4

Summary of Groundwater PCS Located Within Wellhead Protection Areas, Town of Weare, NH

Map Location	Type of Site	Identified By	Contamination Source	BMP Need	Use	Zoning	In WHPA
1	Warehouse w/ heavy trucks and equipment warehouse	SNHPC	Russell's Truck and Equipment	Medium	Equipment repair/Machinery Storage	AR	Yes
2	Excavation Service	SNHPC	W. Boisvert & Sons	Medium	Heavy equipment storage		Yes
3	Campground	SNHPC	Cold Spring Campground	Low	Heavy equipment storage		Yes
4	RV Rental	SNHPC	Cold Springs RV Center	Medium	RV and tank storage		Yes
5	Auo Repair	SNHPC	Marc Phillips Automobile Service	Medium	Auto repair and salvage yard	AR	Yes
6	School Bus Storage	SNHPC	Centre Machine	Low	School bus and tank storage		Yes
7	Hair Salon	SNHPC	Pampered Touch	Low	Cosmetic product use		Yes
8	Police/Fire Station	SNHPC	Weare Safety Complex	Low	Auto maintenance		Yes
9	Farm	SNHPC	Farm	Medium	Old heavy equipment storage		No
10	Construction	SNHPC	REM Brothers Paving	Low	Out of service, junk storage		Yes

Source: Southern New Hampshire Planning Commission

3. INVENTORY OF PCSS WITHIN WELLHEAD PROTECTION AREAS

The location and description of the PCS identified within or near the 17 wellhead protection areas are described as follows:

PCS 1: Russell's Truck and Equipment: Located at 682 North Stark Highway, this PCS site is located within the John Stark Regional High School WHPA. This PCS has a storage and repair site for large heavy work trucks and other similar heavy machinery. There is a garage complete with a vehicle lift in addition to two other buildings. It is capable of doing repairs on site. Because of the number of vehicles stored on this location and the nature of the business, it is likely that this site would house more than five gallons

of regulated substances. It is considered to require a medium level of BMP management need due to its size, the type of land use activity, and its location within the WHPA.

PCS 2: W. Boisvert & Sons is located at 400 S. Stark Highway. The site is used for storing heavy excavating, septic and landscaping equipment. The BMP Management Need level is medium given the size of the site and the size and nature of the equipment stored.

PCS 3: Cold Springs Campground is located at 62 Barnard Hill Rd. The site is used for storing and maintaining RVs. The BMP Management Need level is low as much of this activity is conducted within an enclosed building and over a concrete surface.

PCS 4: Cold Springs RV Center is located at 530 S. Stark Highway. The site is used for storing and maintaining RVs and fuel tanks. The BMP Management Need level is medium given the existing storage of fuels on site.

PCS 5: Marc Phillips Automobile Service: This site is located at 7 Renshaw Road and is an auto body shop. It is located within the Granite State Telephone WHPA. It is a medium level threat because auto body shops generally use lubricants, motor oil, paints and thinners, and other common regulated substances which are not typically used or stored at a standard automobile service garage. The threat of leaks and spills of these regulated substances pose a higher risk to the groundwater, thus the BMP Management Need level is higher.

PCS 6: Centre Machine is located at 58 Carding Mill Rd. The site is used for Weare School District buss storage. The BMP Management Need level is low.

PCS 7: Pampered Touch is located at 64 S. Stark Highway. The site is used primarily for cosmetic product use and disposal. The BMP Management Need level is low.

PCS 8: Wear Safety Complex is located at 144 S. Stark Highway. The site is used for storing and maintaining heavy equipment by the Town of Weare. The BMP Management Need level is low as precautions and BMPs are in place.

PCS 9: A Farm is located at 1 S. Sugar Hill Rd. The site is used for storing many old, rusted heavy equipment, and farming vehicles. The BMP Management Need level is medium as it is not known what the condition of all the equipment is in on the site and if there is a higher risk for spills and leaks due to aging equipment.

PCS 10: REM Brothers Paving is located at 605 N. Stark Highway. The site is out of service, but is used for storing junk. The BMP Management Need level low as the site is not actively being used.

V. IMPLEMENTING BEST MANAGEMENT PRACTICES

To reduce the potential for spills or other accidental releases at commercial sites using large volumes of regulated substances, towns and water systems conduct brief BMP inspections. This can prevent serious problems in the future. Inspections may be option or mandatory if authorized under local ordinance or state reclassification. All PCS sites using regulated substances on a regular basis should be inspected at least once every three years to account for changes in operations or ownership/personnel. Town officials, such as the Building Inspector/Health Officer and Code Enforcement Officer, can be trained by NH DES to conduct BMP Compliance inspections.

The BMP inspections are voluntary, relatively brief and reflect a set of minimum standards for regulated substances, such as fuel oil, fertilizers, etc., and how they must be stored, transported, labeled, in accordance with Env-Wq 401, Best Management Practices for Groundwater Protection (NH Administrative Rule). These standards help to minimize the release of regulated substances which can contaminate groundwater. If a site is not able to meet the standards within Env-Wq 401, the site owner or representative must correct the deficiency and make improvements.

In order for the Town of Weare to conduct BMP inspections to inspect PCSs on a routine basis, the town's groundwater protection ordinance or health ordinance should be amended to allow for such inspection. In addition, provisions for conducting BMP Compliance inspections could also be added to the Planning Board's site plan regulations to allow the town to conduct inspections for new activities requiring plan approval.

During the Advisory Committee meetings that were held in the development of this plan, no specific recommendation was made to the town to consider reclassifying the town's groundwater or adding BMP inspections as part of the town's health ordinance. Therefore, the most effective method would be to ensure that the Planning Board's zoning ordinance, subdivision and site plan regulations are amended to reflect the need for BMP inspections, as appropriate.

The following photos courtesy of NH DES Source Water Protection Program are provided for use in this plan as examples of both bad and good BMPs with respect to various land use activities.

Spilled Antifreeze

Gas Can Storage

VI. EDUCATION & PUBLIC AWARENESS

Getting residents and the public aware of and involved in drinking water protection is part of a "multi-barrier" approach to managing drinking water supplies. Residents need to know the value of groundwater and that certain areas of town are important to protect for future use. The Town of Weare should consider inserting public educational materials into current town publications and web page with basic information concerning why and how to protect groundwater.

Towns may also include letters to residents. An example of a letter from Dublin, NH can be found in Appendix C. The letter gives a brief explanation of the purpose for drinking water protection, how it affect residents, and why certain activities and products used in

daily life can contaminate the drinking water. Either within the mailing, or accessible on the town website, should be a list of restricted uses and activities such as dumping or spraying regulated substances, allowing petroleum products to leak into the ground, or the overuse of fertilizers.

The town could also direct residents to a link on the town's website that would contain a copy of this plan as well as maps with the WHPAs displayed on them. The Conservation Commission could also play a role in groundwater protection activities. Community and/or school events such as Earth Day, Old Home Days, etc. may be good venues to reach a large audience concerning the importance of groundwater protection and can be an effective way to increase public awareness.

The town may post signs in public places (e.g. right-of-way) alerting people that they are within an area contributing water to a public water supply, e.g. within a WHPA. The photo on the right shows an example of one of the signs. Citizen involvement for sourcewater protection varies from situation to situation. For businesses that use property in a way that could present certain public health risks, such as refueling heavy equipment, large-scale composting or solid waste processing, BMPs should be in place to limit releases to the ground. Table 2 provides a list of a number of existing land uses that have the potential to contaminate drinking water and should follow common-sense BMPs.

The NH DES Source Water Protection Program currently does not provide these signs for municipalities within the state. If the Town of Weare is interested in installing these signs within the community, the town would need to have the sign made and installed.

VII. LOCAL GROUNDWATER MANAGEMENT AND PROTECTION OPTIONS AND RECOMMENDATIONS

There are a number of options available to municipalities to protect groundwater including land use regulations, land acquisition, public education, NH DES groundwater reclassification, BMP inspections. These options have been grouped under five protection strategies: Education & Public Awareness; Land Use Controls, Health Ordinance/Reclassification, BMP Inspections, and Land Conservation. Most of these strategies require the adoption of local regulations (zoning, site plan, health ordinance, etc.) while others are non-regulatory (such as education and land conservation).

All of these techniques are described in *The DES Guide to Groundwater Protection*, available from NH DES's Drinking Water Source Protection Program at (603) 271-7061. Section VI of this plan outlines various education and public awareness techniques which the town can implement. Section V. of the plan discusses the need for and importance of BMP inspections to reduce the potential for groundwater contamination which can be made an optional or mandatory requirement as part of a local town health ordinance or through a groundwater reclassification approved by NH DES. BMPS inspections can also be codified as part of a local groundwater/aquifer protection zoning district or as part of the planning board's site plan regulations.

In deciding the best way to use these management/protection techniques, **this section of the plan includes a review of the town's existing master plan, zoning and site plan regulations.** This review is intended to identify and provide information to the Planning Board and town officials regarding existing gaps in protection. It also offers recommendations and specific amendments to the town's existing land use regulations – zoning, site plan and subdivision - which can and should be adopted and implemented by the town.

A. MASTER PLAN

The Town of Weare's Master Plan includes a chapter on natural resources which sets forth goals and the importance of protecting Weare's drinking water aquifer supply. As noted in this plan, the Town of Weare has several important and high yielding aquifers associated with the Piscataquog River and located within the northern part of the community north of Gould Road in the Daniels Lake area. While these aquifers are important water supply for the community, the entire community and all residents within the town are dependent upon the availability and quality of existing groundwater for drinking water. Therefore, it is important that appropriate measures are taken to protect this resource and that this Source Water Protection Plan be adopted and included by reference to the town's master plan. This will then set forth the justification necessary to enact local regulations.

It is recommended that when the town's master plan is amended and updated in the future, the master plan identify and include the town's existing wellhead protection areas as part of the community's "Priority Protection Areas" listed within the Master Plan. In addition, the NH DES's Model Groundwater Protection Ordinance (GWPA) should be identified within the town's master plan.

Currently, the town's Master Plan recommends: *"the Town of Weare retain a geohydrologist to identify and map the primary and secondary recharge areas to the town's major aquifers and that this information and appropriate guidelines regarding future development be incorporated into the town's aquifer protection ordinance to protect these critical areas"* (Weare Master Plan). When the town's Master Plan is updated in the future, the plan should identify this source water protection plan and include recommendations for education and public awareness; land use controls; health ordinance/groundwater reclassification; BMP inspections; and land conservation.

Further guidance on drafting drinking water protection strategies and policies in master plans or water resource protection plans is available from NH DES (271-0688). The Southern New Hampshire Planning Commission is available to assist the Weare Planning Board in crafting future amendments and updates to the town's Master Plan which take into account this plan and its recommendations.

B. ZONING ORDINANCE

Zoning and other land use regulations guide future growth and development and at the same time preserve and protect groundwater resources for exiting and future use. The Town of Weare's existing zoning ordinance strives to address this goal by recognizing the vital importance of protecting groundwater as the primary source of drinking water for the community.

During the 1970's, the town adopted an Aquifer Protection Overlay District under Article 29 of the town zoning code which recognizes that water resources in Weare must be conserved and managed for the general health of the public and for future generations. Today this zoning ordinance is somewhat old and out of date and the ordinance itself in various sections and parts needs to be updated with respect to NH DES's most recent (April 2010) Model Groundwater Protection Ordinance.

Overall, the Town of Weare's aquifer protection ordinance includes some of the provisions set forth by the NH DES Model Groundwater Protection Ordinance, and in a few cases goes beyond the state model by requiring, for example, a conditional use permit for the operation of a commercial car wash.

The Town of Weare's current aquifer protection district also includes most of all the model ordinance provisions for maintenance and inspection, and clearly identifies that inspections shall be carried out by the town's Code Enforcement Officer at reasonable times with prior notice to the landowner.

The state model ordinance advocates a balanced approach between the uses of reasonable performance standards together with restrictive zoning. It also includes necessary authorization to conduct BMP compliance inspections as well as the submittal of performance guarantees or bonds to ensure the construction and completion of any facilities that may be required for compliance with the performance standards of the ordinance.

Some of the areas and specific recommendations for updating the town's existing aquifer protection overlay district are identified and discussed below.

Also included in this section is a copy of the actual Zoning Ordinance Amendment that was adopted by the Town of Weare at the March 2011 Town Meeting

Recommendations:

- Jurisdictionally the town's existing aquifer protection ordinance applies only to the designated stratified drift aquifers identified and mapped by the Jon Cotton, 1977 USGS Lower Merrimack River Basin Water Resources Investigation. This aquifer mapping is extremely old and has been updated as noted in Section III of this plan by 1990 and 1995 USGS aquifer studies.

  In addition, newly enhanced aquifer transmissivity maps of the Town of Weare are now available on the NH GRANIT GIS database managed by Complex Systems at UNH, with the most recent map revisions made as of February 2000. These newly enhanced aquifer maps were produced under a cooperative agreement between the USGS Pembroke, NH office and the NH DES Geological Survey. It is essentially that the Town of Weare's existing aquifer protection overlay zoning district be updated to apply to the latest aquifer mapping available for the community.

- It is a key recommendation of this plan that the Weare Planning Board include the existing and potential future ***Wellhead Protection Areas*** for all active public water supply systems located within the community as part of the town's existing aquifer protection overlay district. This can be accomplished by adding to Article 29.4 (Location) the WHPA delineations accepted or on record with NH DES; or referring to the Wellhead Protection Area map, like the one contained within Appendix A of this plan.

- It is suggested that the Weare Planning Board also consider looking at ways to expand or amend the town's existing aquifer protection district such that it can apply as a flexible overlay district protecting all groundwater within the town. While this is not a preference of the NH DES Source Water Protection Program, there are other communities within the state which have pursued this form of zoning protection.

ADOPTED ZONING ORDINANCE AMENDMENT

Through the development of this plan, it was determined that the Town of Weare's Groundwater Protection Ordinance was not current with respect to the 2006 NH DES Model Groundwater Protection Ordinance ***(Revised, April 2010)***. As a result, a number of revisions are recommended by this plan to keep the ordinance up to date and current.

In the review of the town's existing Groundwater Protection Ordinance, the Weare Planning Board spent considerable time going through the ordinance and the recommendations of this plan. As a result of this review, the following Zoning Amendment - Groundwater Protection District Revisions was recommended by the Planning Board as an official zoning warrant article for the March 2011 Town Meeting. This zoning amendment was subsequently adopted by a solid majority of the voters of the town

Zoning Amendment – Groundwater Protection

Insert the following bold and italic text into Article 29 to read as follows:

ARTICLE 29

29.1 AQUIFER PROTECTION ORDINANCE – TOWN OF WEARE

29.2 PURPOSE: Pursuant to RSA 674:16 – 674:21, the Town of Weare adopts an Aquifer Protection Ordinance and accompanying regulations to help insure a quality future for the people as set forth in the Master Plan. The Town believes that an adequate water supply is indispensable to the future well being, health, welfare, and safety of its citizens. Such an adequate supply of quality water is also essential to the maintenance of the existing natural environment of the Town, an environment the Town wishes to protect as essential to its overall goals and objectives. Since the water resources are under a constantly increasing demand for new and/or competing uses, and since the resources are under an ever increasing potential for contamination, the Town declares such water resources invaluable. These resources should be protected, conserved and managed in the interests of present and future generations. Therefore, the purposes of this Aquifer Protection Ordinance are:

29.2.1 To protect the public heath and general welfare of the citizens of Weare.

29.2.2 To protect, preserve and maintain the existing and potential groundwater supplies from adverse development or unwise land use practices.

29.2.3 To promote future growth and development of Weare, in accordance with the Master Plan, by insuring the future availability of clean water for drinking and all domestic uses, plus, having available water in quantity for the Town's commercial and/or industrial future requirements.

29.2.4 To encourage uses that can appropriately and safely be located within the direct and indirect recharge areas of the aquifers.

29.3 LOCATION: The Aquifer Protection Zone is identified as those areas appearing on the ***map entitled "Town of Weare Aquifer Transmissivity," dated June 2009 as provided within the Town of Weare Source Water Protection Plan. This aquifer transmissivity map is based upon the stratified drift aquifer data available on NH GRANIT. This transmissivity data was automated from maps generated as part of a larger study of groundwater resources in the State and is based on a study conducted under a cooperative agreement between the U.S. Geological Survey, Pembroke, NH and the NH Department of Environmental Services, Water Resources Division. From time to time, this data may be amended or superseded by the U.S. Geological Survey and the NH Department of Environmental Services, or by the Planning Board as provided herein.***

AND:

The Aquifer Protection Zone also includes the NH DES designated Wellhead Protection Areas as shown on the map entitled, "Town of Weare Wellhead Protection Areas," dated June 2009 included within the Town of Weare Source Water Protection Plan on file with the Planning Board Office and as may be amended from time to time by the N.H. Department of Environmental Services, or by the Planning Board as provided herein.

29.4 RECHARGE AREAS: For the purpose of this Ordinance, the Direct Recharge area for the U.S.G.S. identified aquifers is considered to be excessively well-drained soils directly over the aquifer. No primary or Indirect Recharge areas have been identified at the time of the enactment and are not considered a part of this ordinance.

29.4 ***DEFINITIONS:***

Aquifer: A geologic formation composed of rock, sand or gravel that contains significant amounts of potentially recoverable water.
Bulk Sale: Removal and sale of groundwater.

Greenyard: A junkyard which has been certified by the NH DES as a Green Yards under Phase II: Compliance Assurance and Certification component of the NH DES Green Yards Program.

Groundwater: Subsurface water that occurs beneath the water table in soils and geologic formations.

Groundwater Mining: Water being withdrawn at a rate exceeding the rate of recharge.

Groundwater Recharge Areas: Those primary, direct, and indirect areas from which water is added to the aquifers by the natural processes of infiltration and precipitation.

Impervious: Not readily permitting the infiltration of water.

Impervious Surface: A surface through which regulated substances cannot pass when spilled. Impervious surfaces include concrete unless unsealed cracks or holes are present. Asphalt; earthen, wooden, or gravel surfaces; or other surfaces which could react with or dissolve when in contact with the substances stored on them are not considered impervious surfaces.

Junkyard: An establishment or place of business which is maintained, operated, or used for storing, keeping, buying, or selling junk (ex. such as scrap metal, used appliances), or for the maintenance or operation of an automotive recycling yard, and includes garbage dumps and sanitary landfills. The word does not include any motor vehicle dealers registered with the director of motor vehicles under RSA 261:104 and controlled under RSA 236:126.

Leachable Wastes: Waste materials, including solid wastes, sludge and agricultural wastes that are capable of releasing contaminants to the surrounding environment.

Mining: The removal of geologic materials such as topsoil, sand and gravel, metallic ores, or bedrock to be crushed or used as building stone.

Non-conforming Uses: Any lawful use of building, structures, premises, land or parts thereof existing as of the effective date of this Ordinance, or amendment thereto, and not in conformance with the provisions of this Ordinance, shall be considered to be a non-conforming use.

Outdoor Storage: Storage of materials where they are not protected from the elements by a roof, walls, and a floor with an impervious surface.

Positive Limiting Barrier (PLB): A PLB is a depression (e.g. groove) in the surface of an otherwise level impervious area designed to impede the flow and contain spilled substances within the perimeter of the impervious area. PLBs are typically constructed and maintained to contain small spills or releases (five to 15 gallons).

Public Water System*: *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 [New Hampshire Administration Rule Env-Ws 302.02 (bg) and RSA 485:I-aXV].

Recharge Areas: Any land surface from which groundwater recharge occurs.

Regulated Substance*: *Petroleum, petroleum products and substances Listed under 40 CFR 302.4, 7-1-90 Edition, or current edition [US Code of Federal Regulations], excluding the following substances: ammonia, sodium hypochlorite, sodium hydroxide, acetic acid, sulfuric acid, potassium hydroxide, potassium permanganate and propane and other liquefied fuels which exist as gases at normal atmospheric temperature and pressure. Copies of 40 CFR 302.4, 7-1-90 Edition, or current edition, are available on line at the Environmental Protection Agency (EPA) website or in the Planning Board Office.

Sanitary Protective Radius*: *The area around a well that must be maintained in its natural state as required by Env-Ws 378 or 379 (for community water systems) and Env-Ws 372.13 (for other public water systems).

Secondary Containment*: *A structure such as a berm or dike with an impervious surface which is adequate to hold at least 110% of the volume of the largest regulated-substances container that will be stored there.

Snow Dump*: *For the purposes of this ordinance, a location where snow which is cleared from roadways and/or motor vehicle parking areas is placed for disposal.

Solid Waste: Any discarded or abandoned material including refuse, putrescible materials, septage, or sludge, as defined by New Hampshire Solid Waste Rules HE-P 1901.03. Solid waste includes solids, liquids, semi-solids, or waste containing gaseous material resulting from residential, industrial, commercial, mining, or agricultural operations, or waste from community activity or waste from educational institutions.

Stratified-drift Aquifer*: *A geologic formation of predominantly well sorted sediment deposited by or in bodies of glacial melt water, including gravel, sand, silt, or clay, which contains sufficient saturated permeable material to yield significant quantities of water to wells.

Structure: Anything constructed or erected, except a boundary wall or fence, the use of which requires location on the ground or attachment to something on the ground. For the purposes of this Ordinance, buildings are structures.

- xture of such

Surface Water: Streams, lakes, ponds and tidal waters, including marshes, water courses and other bodies of water, natural or artificial.

Wellhead Protection Area: The surface and subsurface area surrounding a water well or well field supplying a community public water system, through which contaminants are reasonably likely to move toward and reach such water well or well field. [RSA 485-C:2 Definitions]

29.5 APPEALS: Where bounds of the identified aquifer areas, as delineated, are in doubt or in dispute, any landowner aggrieved by such delineation may appeal the boundary location to the Planning Board. Upon receipt of such appeal, the Planning Board shall suspend further action on development plans related to the area under appeals and engage, at the landowner's expense, a qualified hydrogeologist to prepare a report determining the proper location and extent of the aquifer area(s) relative to the property in question. The aquifer map shall be modified, if need be, by such determination subject to review and approval by the Planning Board.

29.7 USE REGULATIONS

29.7.1 For minimum lot size refer to lot sizes for Residential, Rural Agricultural, Commercial and Industrial.

29.7.2 MAXIMUM LOT COVERAGE: Within the Aquifer Protection Zone, no more than 10% of a single lot, including the portion of any new street abutting the lot, may be rendered impervious to infiltration. Maximum lot coverage may be increased if upon site plan review, drainage requirements are properly engineered.

29.7 PROHIBITED USES: The following uses are prohibited in the Aquifer Protection Zone except where permitted to continue as a non-conforming use.

29.7.1 Disposal of solid waste other ***than*** brush.

29.7.2 The siting or operation of a hazardous waste disposal facility as defined under RSA 147-A.

29.7.3 ***Development and operation of a petroleum bulk plant or terminal.***

29.7.4 ***Industrial uses which discharge processed waters and the siting or operation of a wastewater or septage lagoon.***

29.7.5 ***Outdoor*** storage of road salt or other de-icing chemicals.

29.7.6 Dumping of snow containing de-icing chemicals.

29.7.7 Storage of unregistered junk automobile, junk and salvage yards***, unless such facility is certified by the NH DES as a Green Yards under the Phase II: Compliance Assurance and Certification component of the NH DES Green Yards Program.***

29.7.8 Waste injection wells.

29.7.9 ***The siting or operation of a solid waste landfill.***

29.7.10 ***The development or operation of a snow dump.***

29.8 PERMITTED USES: ***All uses permitted by right or allowed by Special Exception or Conditional Use in the underlying district are permitted in the Aquifer Protection Zone unless they are Prohibited Uses. All uses must comply with the Performance Standards, Section 29.11 of this Ordinance.***

29.9 ***EXEMPTIONS:*** The following ***uses and*** activities ***are exempt from the specified provisions of this ordinance as long as they are in compliance with all applicable local, state and federal requirements***:

29.9.1 Single and two-family residential development.

29.9.2 Activities designed for conservation of soil, water, plants and wildlife.

29.9.3 Outdoor recreation, nature study, boating, fishing and hunting and other activities directly associated with the conservation of wildlife.

29.9.4 Normal operation and maintenance of existing water bodies and dams, splash boards and other water control, supply and conservation devices.

29.9.5 Foot, bicycle, horse paths, ski trails and bridges.

29.9.6 Maintenance, repair of any existing structure, providing there is no increase in the impervious surface area above the limit established by this Ordinance.

29.9.7 Farming, gardening, nursery, forestry, harvesting and grazing provided that fertilizers, herbicides, pesticides, manure and other leachables are used appropriately at levels that will not cause groundwater contamination. Materials will be stored appropriately.

29.9.8 Maintenance and repair of any existing structure.

29.10 PERFORMANCE STANDARDS: ***The following Performance Standards apply to all uses in the Aquifer Protection Zone unless Exempt under Section 29.9 of this ordinance. The Planning Board may, at its discretion, require a performance guarantee or bond, in an amount and with surety conditions satisfactory to the Board, to be posted to ensure completion of construction of any facilities required for compliance with the Performance Standards.***

A. Any use requiring the storage, handling, and use of regulated substances in quantities exceeding 100 gallons or 800 pounds dry weight at any one time, are required to have in place an adequate plan to: prevent, contain, and minimize releases from catastrophic events such as spills or fires which may cause large releases of regulated substances. Such plan shall be reviewed and approved by the Fire Chief, Health Officer and Emergency Management Director;

B. Any use that will render impervious more than 10% or 2,500 square feet of any lot whichever is greater, a stormwater management plan shall be prepared which the planning board determines is consistent with New Hampshire Stormwater Manual Volumes 1-3, December 2008, NH Department of Environmental Services and any subsequent revisions. Such plan shall demonstrate that the use will minimize the release of regulated substances into stormwater;

C. Animal manures, fertilizers, and compost must be stored in accordance with Manual of Best Management Practices for Agriculture in New Hampshire, NH Department of Agriculture, Markets, and Food, July 2008, and any subsequent revisions;

D. All regulated substances stored in containers with a capacity of five gallons or more must be stored in product-tight containers on an impervious surface designed and maintained to prevent flow to exposed soils, floor drains, and outside drains;

E. Facilities where regulated substances are stored must be secured against unauthorized entry by means of a door and/or gate that is locked when authorized personnel are not present and must be inspected weekly by the facility owner;

F. Outdoor storage areas for regulated substances, associated material or waste must be protected from exposure to precipitation and must be located at least 50 feet from surface water or storm drains, at least 75 feet from private wells, and outside the sanitary protective radius of wells used by public water systems;

G. Secondary containment must be provided for outdoor storage of regulated substances. Regulated substances stored in containers must include a cover to minimize accumulation of water in the containment area;

H. Blasting activities shall be planned and conducted to minimize groundwater contamination. Excavation activities should be planned and conducted to minimize adverse impacts to hydrology and the dewatering of nearby drinking water supply wells.

I. All transfers of petroleum from delivery trucks and storage containers over five gallons in capacity shall be conducted over an impervious surface having a positive limiting barrier at its perimeter.

29.11 CONDITIONAL USES: ***A Conditional Use Permit is required for the following uses. In granting such permit, the Planning Board must first determine that the proposed use is not a prohibited use and will be in compliance with the Performance Standards, Section 29.10 of this Ordinance.***

29.11.1 The excavation of earth products providing such excavation does not go lower than four (4) feet above the water table.

29.11.2 Construction of ponds subject to site plan review.

29.11.3 The development or operation of gasoline stations.

29.11.4 The siting or operation of Green Yards as certified by the NH DES under the Phase II: Compliance Assurance and Certification component of the NH DES Green Yards Program.

29.11.5 The siting or operation of a commercial compost facility.

29.11.6 ***The siting or operation of a commercial car wash. The facility must be designed and operated as a closed-loop system.***

29.11.7 ***Any activities that involve blasting of bedrock.***

29.12 SEPTIC SYSTEM DESIGN AND INSTALLATION: In addition to meeting all local and state septic system citing requirements, all new waste disposal systems installed in the Aquifer Zone shall be designed by a licensed ***septic system designer*** and approved by the ***Code Enforcement Officer.***

29.13 ADDITIONAL GUIDELINES: Except For single family and two-family dwellings, the following guidelines shall be observed within the Aquifer Protection Zones.

29.13.1 Safeguards: Provision shall be made to protect against toxic or hazardous materials discharge or loss resulting form corrosion, accidental damage spillage, or vandalism through measures such as: spill control provisions in the vicinity of chemical or fuel delivery points, secured storage areas for toxic or hazardous materials, and indoor storage provisions for corrodible or dissolvable materials. For operations which allow the evaporation of toxic or hazardous materials into the interiors of any structure, a closed vapor recovery system shall be provided for each such structure to prevent discharge of contaminated condensate into the groundwater.

29.13.2 Location: Where the premises are partially outside the Aquifer Protection Overlay Zone, potential pollution sources such as on-site waste disposal systems shall be located outside the Zone***, unless the location is approved by the Planning Board.***

29.13.3 Drainage: Runoff from impervious surfaces shall be recharged on the site, and diverted toward areas covered with vegetation for surface infiltration to the extent possible. Commercial and Industrial dry well shall be used only where other methods are not feasible, and shall be preceded by oil, grease, and sediment traps to facilitate removal of contaminants.

29.13.4 ***Inspections: All Permitted Uses under Section 29.8 and Conditional Uses granted under Section 29.11 may be subject to annual inspections by the Code Enforcement Officer or another agent, that agent must be approved by the Board of Selectmen.***

A. Inspections may be required to verify compliance with Performance Standards, Section 29.10 of this ordinance. Such inspections shall be performed by the Code Enforcement Officer or the approved agent at reasonable times with prior notice to the landowner.

B. All properties within the Aquifer Protection Zone known to the Code Enforcement Officer or the approved agent as using or storing regulated substances in containers with a capacity of 10 gallons or more except for facilities where all regulated substances storage are exempt from this Ordinance under Section 29.9, shall be subject to inspections under this Section.

C. The Planning Board may require a fee for compliance inspections. The fee shall be paid by the property owner. A fee schedule shall be established by the Planning Board as provided for in RSA 41-9:a.

D. For uses requiring planning board approval for any reason, a narrative description of maintenance requirements for structures required to comply with Performance Standards, shall be recorded so as to run with the land on which such structures are located, at the Registry of Deeds for Hillsborough County. The description so prepared shall comply with requirements of RSA 478:4-a.

29.14 EXISTING NONCONFORMING USES

Existing nonconforming uses may continue without expanding or changing to another nonconforming use, but must be in compliance with all applicable state and federal requirements, including Env-Ws 421, Best Management Practices Rules.

29.15 RELATIONSHIP BETWEEN STATE AND LOCAL REQUIREMENTS

Where both the State and the municipality have existing requirements the more stringent shall govern.

29.16 ENFORCEMENT PROCEDURES AND PENALTIES

Any violation of the requirements of this ordinance shall be subject to the enforcement procedures and penalties detailed in RSA 676.

29.17 SAVING CLAUSE

If any provision of this ordinance is found to be unenforceable, such provision shall be considered separable and shall not be construed to invalidate the remainder of the Ordinance.

29.18 EFFECTIVE DATE

This ordinance shall be effective upon adoption by the legislative body.

C. SUBDIVISION AND SITE PLAN REGULATIONS

The Weare Planning Board has adopted both Subdivision and Site Plan Review Regulations under the provisions of RSA 674:35 and 674:43 and 44. These regulations empower the Planning Board to approve or disapprove applications for the subdivision of land and the construction of a struture or structures or other improvements on a tract of land for any non-residential use, or for multi-family dwelling units whether or not such development includes the subdivision or re-subdivision of the site.

While these regulations recognize the importance of preserving public health through the sensible subdivison and development of land, there are very minimal provisions in the regulations which provide for groundwater protection within the community. Additionally there are no submital or plan requirements notifying the applicant, the public or the planning board about the importance or need for groundwater protection.

This problem can be adequately addressed through a number of simple actions and revisions to these regulations as discussed below and as outlined in the following proposed amendments to the Town of Weare's Site Plan and Subdivision Regulations. The overall goal of these actions should be to raise awareness about the need for groundwater protection among municipal officials, planning board members, property owners, developers and the public.

In addition, the amendments to the board's subdivision and site plan regulations should encourage or require that all major subdivisions and site plans for the development of land within the Town of Weare incorporate the use of ***Low Impact Development*** techniques/practices in order to recharge clean water (drainage/stormwater) to the fullest extent possible.

Recommendations

1. Add a submittal requirement under Section 8, "**General Requirements and Design Standards for Major Subdivisions Only**" to have all subdivision plans incorporate low impact development (LID) techniques/designs as a means to infiltrate all clean or treated precipitation on-site over existing aquifers and wellhead protection areas. Information about acceptable LID principles and other recommended BMPs are outlined within the NH DES Stormwater Manual, December 2008, as amended.[9]

2. Add a new Groundwater Protection section to the Planning Board's **Site Plan Regulations** which would be applicable for all uses of land uses requiring site plan approval which store or use regulated substances in containers having a capacity of five gallons or more within a delineated wellhead protection area. This new section would require:

    a. A map of all public water supply wells and their protection areas on or near the site, and an assessment of groundwater vulnerability;

[9] NH DES: http://des.nh.gov/organization/divisions/water/stormwater/manual.htm

b. A listing of the types and quantities of regulated and hazardous substances and BMPs consistent with Env-Wq 401 that need to be used on the site;
c. A map and/or diagram of facilities on the site were regulated substances will be stored, transferred or otherwise used, and secondary containment structures,
d. Loading/unloading areas, septic systems, underground storage tanks and storm drain inlets;
e. A listing of all state and federal regulatory requirements for the proposed use and a requirement that all approved plans state specific rules related to groundwater protection on the plan if they apply to regulated substances (Env-Wq. 401), groundwater discharge (Env-Wq. 402), and stormwater management (e.g. Env.-Wq. 1500, AOT).
f. Identification and provision for adequate security of all groundwater protection BMPs proposed for the use within designated Wellhead Protection Areas;
g. Restrictions against discharges to groundwater including direct and indirect discharges, without required state and federal permits and approvals;
h. Requirements that all general purpose floor drains be connected to an on-site holding tank; or a system authorized through a state subsurface disposal permit;
i. Requirement that the design of all stormwater management and drainage facilities shall not increase flooding or the potential for pollution of surface or groundwater, on-site and off-site; and
j. Requirement of an SPCC Plan to be submitted to the Fire Chief and Emergency Management Director addressing the following elements:
    - disclosure statements describing the types, quantities, and storage locations of all regulated substances that will be part of the proposed use or activity;
    - owner and spill response manager's contact information;
    - location of all surface waters and drainage patterns;
    - a narrative describing the spill prevention practices to be employed when normally using regulated substances;
    - containment controls, both structural and non-structural;
    - spill reporting procedures, including a list of municipal personnel or agencies that will be contacted to assist in containing the spill;
    - name of a commercial vendor who may be contacted by the municipality after a reported spill; and
    - List of clean up equipment with instructions available for use on-site and contact information for employees with adequate training to respond to a release and implement containment and clean up.

3. In addition, the Planning Board's site plan regulations should be updated to require low impact development (LID) practices and techniques within their proposed site plans, where appropriate. These LID areas should not receive any stormwater containing regulated substances or regulated groundwater

contaminants washed off from work, transfer or storage areas. LID practices aid in better stormwater management and treatment. Treatment helps remove pollutants from stormwater before it recharges into the ground. Low impact development practices include for example vegetated retention ponds, swales, and low or no curbing to reduce the amount of run off traveling down paved surfaces. For more information, refer to the University of New Hampshire's stormwater management studies.[10]

Proposed Amendments to Site Plan and Subdivision Regulations

In justifying the need for amending the Planning Board's subdivision and site plan regulations, it must be restated that Weare relies primarily upon public or private wells for drinking water and thus the town has an interest and duty to protect contributing groundwater to these water resources for the greater public good. In addition, it can not be assumed that Weare's zoning regulations (existing and proposed revisions to the groundwater protection district) alone are going to be adequate to protect the town's groundwater. Most officials often assume that an applicant and his/her engineer have carefully considered and evaluated all environmental concerns during the zoning or site design process. However, this is not always the case and contamination is more common than most officials realize.

The first step that the Planning Board should take during the subdivision and site plan review process is to require the applicant or developer provide information describing the environmental status of the site.[11] Have any contaminant releases (e.g. oil, gas) occurred on the site? Is the site listed with NH DES or EPA as a hazardous waste site? Are there currently regulated substances, hazardous wastes or fuel storage tanks maintained on the site? These basic questions should be asked as standard requirements for all subdivision and site plan applications and they can be easily incorporated into either the subdivision/site plan application or submittal requirements of any municipality. ***Currently the subdivision regulations (Appendix 3) only requires flood hazard and aquifer protection information in the minimum requirements as a subdivision checklist (No #16). The subdivision regulations do not reference any provisions or specific data, like that discussed above, that the Planning Board should include in plan review to ensure that the town's groundwater will be protected.***

Information about existing contamination is not difficult to obtain. Both NH DES and EPA maintain lists of potential hazardous waste sites on their websites. It is not difficult for municipal officials or an applicant to review these records as part of the site plan review process to confirm that a site or an abutting parcel is not a listed hazardous waste site or generator of hazardous waste.

[10] UNH Stormwater Management: http://www.unh.edu/erg/cstev

[11] Todd H. Dresser, "Using the Site Plan Review Process to Promote Aquifer Protection", Cuoco & Cormier Engineering Associates, Inc., Nashua, NH

In addition, this plan can be used as a reference to help identify both known and potential contamination sources as well as the location of active community water systems and designated wellhead protection areas.

SNHPC strongly encourages that the Weare Planning Board consider at the very minimum adopting the following recommended revisions to the Board's Subdivision and Site Plan Regulations.

1. Site Plan Review Regulations:

Amend the following existing Sections and insert the following new Sections accordingly into the Site Plan Review Regulations to read as follows:

XI. GENERAL STANDARDS

M. Groundwater Protection

The Planning Board will ensure:

1. Any application for site plan review which involves the proposed receiving, handling, storing or processing of any regulated substance (as defined by RSA 339-A:2) shall disclose this information as part of the application submission. Copies of all appropriate state permits as required by the NH DES for the proposed use shall be submitted to the Town of Weare Health Officer and Weare Fire Department as part of the site plan application.

2. Site plan applications which involve property contaminated by hazardous or toxic materials (as defined by RSA 339-A:2) shall disclose such information as part of the application. If the Planning Board finds that a potential health risk or an environmental threat exists from a previous use or existing use of the site, then the Planning Board shall require that any environmental assessment that has been completed and submitted to NH DES shall be submitted to and reviewed by the Town Health Officer (or 3rd party consultant of Board's choice and applicant's expense) prior to any Planning Board action.

2. Subdivision Regulations

Amend the following existing Sections and insert the following new Sections accordingly into the Subdivision Regulations to read as follows:

Section 4.00 General Plan Requirements

Section 4.3 Groundwater Protection

The Planning Board will ensure:

1. Any application for subdivision review which involves the proposed receiving, handling, storing or processing of any regulated substance (as defined by RSA 339-A:2) shall disclose this information as part of the application submission. Copies of all appropriate state permits as required by the NH DES for the proposed use shall be submitted to the Town of Weare Health Officer and Weare Fire Department as part of the subdivision application.

2. Subdivision applications which involve property contaminated by hazardous or toxic materials (as defined by RSA 339-A:2) shall disclose such information as part of the application. If the Planning Board finds that a potential health risk or an environmental threat exists from a previous use or existing use of the site, then the Planning Board shall require that any environmental assessment that has been completed and submitted to NH DES shall be submitted to and reviewed by the Town Health Officer (or 3rd party consultant of Board's choice and applicant's expense) prior to any Planning Board action.

VIII. RECOMMENDED ACTIONS

Having clear and effective local regulations and zoning is necessary to ensure groundwater and local aquifer protection in Weare. Given the existence of the designated wellhead protection areas located within the community (see maps in the Appendix of this Plan); the Medium to High level of threats and risks associated with identified potential and known contamination sources existing within these areas (see Table 2); the extent of the town's aquifers within the community to specific areas (as shown on the Aquifer Transmissivity Map on in Appendix A); and the weaknesses identified in the town's existing groundwater protection district regulations; it is recommended that the Planning Board consider the following steps in providing a higher level of groundwater and aquifer protection within the community.

Step One: **Adopt this Source Water Protection Plan as part of the Town's Master Plan and amend the plan on a regular basis.**

- This source water protection plan provides useful information about the status of the town's public water systems. Because ownership of these systems changes over time, new wells are installed and some wells may be closed in the future, it is important that this plan be amended and updated on a regular basis, particularly in documenting designated wellhead protection areas.

Step Two: Require Private Well Testing

Lastly, the Town of Weare should discuss and address the issue of private well testing. While the State of New Hampshire currently has no mandatory well testing requirements, some municipalities such as the Town of Weare require basic potable water testing to be

performed and results submitted to the Town Health Officer prior to the issuance of a Certificate of Occupancy.

This or a similar requirement could be easily instituted in the Town of Weare through the following amendment to its Site Plan and Subdivision Regulations:

Water Testing: Any public or private business or facility or residential development requiring site plan and/or subdivision approval shall submit the following information to the Town of Weare:

(1) Well water test results performed by a laboratory certified by the National Environmental Laboratory Accreditation Conference shall be submitted to the Weare Health Officer indicating the suitability of the well water for drinking water purposes prior to the issuance of a final Certificate of Occupancy Permit.

While this requirement would address new development, it would not address existing wells and the use of these wells in the future.

Step Three: Conduct municipal BMP Compliance Inspections

It would not be difficult for the Town of Weare to conduct on a routine basis, BMP Compliance Inspections of existing PCS or KCS containing regulated substances over 5 gallon capacity in accordance with Env-Wq 401. This could be accomplished as a mandatory requirement through the zoning powers of the municipality.

Provisions to provide for BMP Compliance Inspections should be added to the town's existing Aquifer Protection Overlay District (Article 29) as well as applicable sections of the Planning Board's site plan and subdivision regulations. Amendments to the zoning ordinance would require town approval, while amendments to the Planning Board's regulations would require a public hearing.

NH DES has published guidance documents, such as the *DES Guide to Groundwater Protection*, *Groundwater Protection for Municipalities and Model Health Ordinances to Implement a Wellhead or Groundwater Protection Program*, and *Guidance and Sample Letters for Managing Groundwater Protection Areas* which can assist the Planning Board and the Town of Weare in implementing BMP Compliance Surveys (see NH DES website, Drinking Water Protection Program and these guidance documents at: http://des.nh.gov/organization/divisions/water/dwgb/dwspp/guidance_documents.htm).

In addition, the Planning Board can during the review of development projects (under site plan and subdivision regulations) impose fees to cover the cost of BMP inspections as well as require adequate performance surety for the installation, operation and maintenance of necessary BMPs which will ensure adequate groundwater and aquifer protection within the community.

An important point to keep in mind when implementing BMP compliance inspections is that these inspections have no enforcement authority unless, 1) they are based upon a local health ordinance adopted under RSA 31:39 or RSA 147; or 2) the inspections are enabled through groundwater reclassification as provided for under RSA 485C; or 3) the inspections are based on the planning and zoning statutes of the state (i.e. RSA 674:17,I) which enable the town to adopt local groundwater and aquifer protection and other land use regulations.

In the absence of any of these powers, Weare's groundwater protection would be limited to bringing about voluntary compliance with the best management practices for PCSs. If efforts at voluntary compliance are not successful, the town can always refer violators to NH DES for enforcement, since the BMPs apply statewide. However, keep in mind that NH DES has limited personnel resources available for BMP enforcement. Therefore, every effort to work out a compliance timetable with violators is often the best course of action.

In addition, the town should encourage or require that all junkyards within the community be certified through the New Hampshire Green Yards Program and follow the program's Environment Guidance Manual[12].

Information on the pollution prevention measures under this program can be found online at: http://www.des.nh.gov/sw/Green Yards.

APPENDIX A: MAPS

[12] NHDES "Green Yards Program and Manual", http://des.nh.gov/organization/divisions/waste/swmb/tsei/greenyards/index.htm

Map 1

Map 2

Map 3

Map 4

Map 5

Map 6

APPENDIX B: NH DES SOURCE WATER ASSESSMENT

APPENDIX C: NOTIFICATION LETTER TO TOWNS

APPENDIX D: WELL-YIELD PROBABILITY

The Well-Yield Probability map, found in Appendix A, prepared for the Town of Weare is based upon the United States Geological Survey (USGS) study of Well-Yield Probability for the State of New Hampshire (2000 & 2001).

The parameters for this study are based upon estimates of obtaining 40 gallons per minute or more of water from a 400-foot deep bedrock well. The results of this study in Weare indicate that while the much of the central north-east and south-east side of the community have very low well yield level probability of less than eight units. The western part of the town has a moderate well yield probability of around 15.1 to 18. However, small areas north-east and north-west corners of the town have a very high well yield of 20.1 units or higher. The majority of Weare has a well-yield probability level of 12.1 to 15.0 units. A unit represents how many gallons are obtained from a 400-foot bedrock well per minute.

While this well-yield probability data may be useful for community-wide planning purposes, it should not be used by the Town of Weare as justification for groundwater or aquifer protection regulations.

APPENDIX E: SUMMARY OF NH DES LIST OF KNOWN CONTAMINATION SOURCES IN WEARE