













DRINKING WATER RESOURCES PROTECTION: GROUNDWATER PROTECTION

LOCATIONS:



- | | |
|---|---|
|  Coastal Communities |  Groundwater Resources |
|  Freshwater |  Projected Sea-Level Rise Impacted Areas |
|  Shorelands |  Entire Community |
|  Tidal Waters |  Coastal Zone Designated Communities |
|  Surface Waters |  Locally Designated Areas and Districts |
|  Flood Zones | |
|  Inland Communities | |

REGULATION OPTIONS:

1. Groundwater Protection*
2. Surface Water Buffer Protection
3. Groundwater Rise & Saltwater Intrusion

* Denotes current section

COMMUNITY GOAL REGULATIONS:

- | | |
|---|--|
|  Open Space Protection |  Recreation Options |
|  Flood Protection |  Transportation Enhancement |
|  Drinking Water Protection |  Historic and Cultural Preservation |
|  Environmental Protection |  Community Design & Aesthetics |
|  Stormwater Management |  Community Equity |
|  Water Quality Protection | |
|  Infrastructure Protection | |
|  Economic Development | |

WHY ADOPT THESE REGULATIONS?

- Increase protection of groundwater resources for private wells and public water systems
- Reduce risk of future contamination associated with climate change.

BACKGROUND & PURPOSE

As municipalities in Southern New Hampshire and the Seacoast continue to experience development pressures, it will be important for communities to take necessary steps, which may include regulating certain land uses which could contribute pollutants to designated wells or local aquifers, to ensure long-term access to safe and clean drinking water for existing and future citizens.

REGULATION LANGUAGE

It is recommended that communities use the [NHDES 2015 Model Groundwater Protection Ordinance](#) as a guide. Below are several additional options for coastal communities to consider:

III. Definitions

A. Flood hazard areas: Areas identified as special flood hazard areas on **FEMA Flood Insurance Rate Maps**, that result in flood waters that often carry hazardous and toxic materials, including raw sewage, animal wastes, oil, gasoline, solvents, and chemicals such as pesticides and fertilizer. Flood waters that enter a well can contaminate the groundwater and make the well water unsafe to drink or to use in your business. The effects may last long after the flood waters have receded.¹

B. Low Impact Development (LID): An innovative approach to stormwater management that is based on the principle of managing runoff at the source.²

VI. Performance Standards

A. Ensure that stormwater management practices follow the stormwater standards adopted by the Southeast Watershed Alliance. The MS4 permit references the 2012 standards; however, the 2017 standards include an enhanced process with stricter requirements. These practices should utilize new precipitation data from the most recent precipitation atlas published by the National Oceanic and Atmospheric Administration (NOAA) for the sizing and design of all stormwater management practices. See the website at: <http://precip.eas.cornell.edu/>.³

B. Require LID practices to address stormwater runoff from high precipitation events in major subdivisions or site plans within the District. Require LID practices to address stormwater runoff from high precipitation events in major subdivisions or site plans within the District.⁴

C. Minimize salt application options shall be proposed for roadways, driveways, and parking areas within the District.⁵

MODEL LANGUAGE

NOTES AND EXPLANATIONS

1. The Groundwater Model Ordinance is silent on surface water flooding (i.e., stormwater runoff, riverine, or sea level rise). Communities may wish to put additional restrictions on hazardous land uses in flood prone areas that overlap with the groundwater protection district to reduce the possibilities of contaminating drinking water supplies.
2. Communities should encourage LID approaches in areas within the groundwater protection zone to recharge stormwater from nearby impervious areas.
3. Stormwater management project designs should incorporate projected changes in extreme precipitation to address BMP vulnerabilities to sea level rise, storm surge, extreme precipitation (e.g., submerged outfalls, reduced separation to groundwater, storm surge inundation, sand, salt, etc.).
4. LID practices may alleviate flooding from extreme events.
5. This will help to reduce higher chloride levels in groundwater used as a source of drinking water. Reference [Green SnoPro & Salt Applicator Certification](#).

D. The Planning Board may approve a Conditional Use permit with input from the Conservation Commission.⁶

a. Prior to rendering a decision regarding the possible approval of any Conditional Use Permit application, the Planning Board shall afford the Conservation Commission an opportunity to provide written comment. After consideration and review of an application for a Conditional Use Permit, the Conservation Commission may recommend the Planning Board deny the application or impose conditions of approval necessary to mitigate the potential for adverse effects caused by the proposed activity or use. If the Planning Board decides to grant a conditional use permit that does not include the Conservation Commission's recommendations, the Planning Board is encouraged to provide the reason for their conclusion as part of the Notice of Decision.

6. While the Conservation Commission has limited statutory authority, strengthening language in a local conditional use permit process may provide additional input during decision-making process with the Planning Board..

VII. Spill Prevention, Control, and Countermeasure (SPCC) Plan

1. Require that the SPCC is reviewed periodically (at least once every three years) and/or after any major storm event, such as but not limited to any storm event with precipitation exceeding a 10-yr, 25-yr or 50-yr event.⁷

2. Identify prevention protocols and best management practices for aboveground storage tanks (AST) that should be implemented prior to a storm/emergency event. Examples may include⁸:

- a. Demonstrate the tank meets industry standards for engineering to withstand climate-intense storm events and secured to prevent failures during flooding events.
- b. Close valves associated with piping and dispensing in advance of expected storm surge or predicted reach of flood water.

7. NHDES' Model Groundwater Protection Ordinance requires SPCC plans for conditional uses using larger amounts of regulated substances (e.g., Article X).

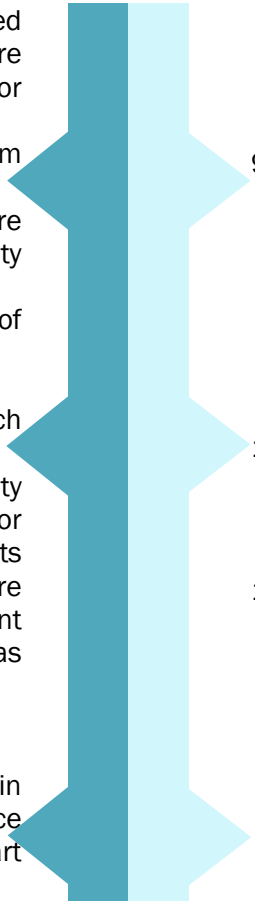
SPCC plans are a tool for employees and emergency responders to limit and control accidental spills and releases

8. The following best management practices are referenced in the EPA's Flood (Hurricane) Preparedness, Recommended Best Practices Fact Sheet and provides information on preparing an AST prior to a storm, which may help to mitigate the impacts from a hazardous spill, and how to return it back to service after a flood.

- c. Ensure that all aboveground tanks not permitted by the state (under 660 gal; 1,320-gal total) are anchored and all piping to prevent uplift or floatation.
- d. Use **stiffener rings** to prevent buckling from storm surge and wind loads⁹
- e. To the greatest extent possible, remove or secure all possible projectile hazards from the facility grounds
- f. Ensure all storm drains are clear and free of debris.
- g. Shut off the power to the fuel system
- h. Inventory and record the level of product in each tank to account for any loss or water entry¹⁰.
- i. Conduct a detailed risk assessment of the facility and evaluate the impact of mitigation strategies for Planning Board review; include these assessments in the Spill Prevention, Control and Countermeasure Plan, Facility Response Plan, Risk Management Plan, or other pollution prevention plan, as applicable.

IX. Prohibited Uses

- A. Outdoor storage areas of regulated substances in flood hazard areas or any area projected to experience sea level rise (see NH Coastal Flood Risk Summary Part 1: Science).¹¹



- 9. Additional stiffener rings can be used to prevent the buckling of ASTs.
- 10. This will help ensure that operators know how to take proactive action with the information.
- 11. Limiting outdoor storage of regulated substances in flood prone areas could be accomplished in two ways.
 - 1. Included as a prohibited use within a municipality’s groundwater protection district whenever a flood zone overlaps with the groundwater protection zone, OR;
 - 2. Incorporated into a municipalities’ floodplain development regulations

WHERE DO THESE REGULATIONS GO?

The regulation language offered in this model is intended to be added to *NHDES’ Model Groundwater Protection Zoning Ordinance*, by article number. It can be incorporated into a town or city’s zoning ordinance within the Wellhead Protection Overlay, Groundwater/Aquifer Protection Overlay, or a combination of both.

HOW TO ADOPT THESE REGULATIONS:

The planning board is responsible for preparing and, in towns, holding public hearings on proposals to adopt or revise the zoning ordinance. RSA 674:1 outlines the duties of the planning board. RSA 674:1, V states that the Planning Board “may, from time to time, recommend to the local legislative body amendments of the zoning ordinance....”

In towns, a zoning ordinance or revision of the ordinance must then be adopted by ballot vote at Town Meeting

In cities and town council towns where the municipal charter determines how a zoning ordinance is to be adopted or revised, a public hearing is still required for all zoning ordinances and amendments

More information about the process of adopting regulations is available in the **Adopting Regulations section** of this guide.

SUGGESTED SUPPLEMENTARY INFORMATION AND RESOURCES TO COMPLEMENT THESE REGULATIONS:

Recommendation	Type	Details
Zoning Map with base zoning districts	Maps/GIS Data	Find in local Zoning Ordinance.
Parcel Map	Maps/GIS Data	Find via Municipal Tax Maps.
Stratified Drift Aquifer	Maps/GIS Data	Access via GRANIT .
Wellhead Protection Areas/ Public Water Supply Wells	Maps/GIS Data	Available via NHDES or Regional Planning Commissions.
FEMA Flood Zones	Maps/GIS Data	Available via FEMA or Regional Planning Commissions.
Sea Level Rise Scenarios	Maps/GIS Data	Reference NH Sea-Level Rise, Storm Surge, and Groundwater Rise Mapper .
Local or regional groundwater studies	Studies	Variable; seek out local groundwater rise information. NOTE: To date most NH communities do not yet have this data.
Zoning Administrator	Personnel	Interprets and administers the regulation.
Code Enforcement Officer OR Fire Chief/EMD	Personnel	Ensures any spill prevention, control, and countermeasure plan is adequate.
Town Engineer	Personnel	Assists with performance standards (for communities that don't have a Town Engineer, an outside consultant could be required to review site plan applications on an as needed basis).
Conservation Commission	Volunteers	Reviews and comments on conditional uses.
Planning Board	Volunteers	Approves/denies site plan applications or conditional use permits within groundwater protection areas.

HOW DOES THIS RELATE TO OTHER TOPICS?

- References to the Master Plan
 - The need/desire to protect drinking water supplies
- Local groundwater reclassification, established under RSA 485-C, is a process to provide greater protection to land areas contributing water to public water systems or to other locally important groundwater resources.

WHO HAS ADOPTED THESE REGULATIONS?

According to NHDES, more than one third (92) of New Hampshire communities have some form of groundwater or aquifer protection zoning, most of them relying on land use restrictions to minimize the risk of groundwater contamination.

ADDITIONAL RESOURCES AND REFERENCES

- New Hampshire DES (Drinking Water and Groundwater Bureau) Model Groundwater Protection Ordinance
<https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/wd-06-41.pdf>
- US EPA Region 6 Regional Response Team (RRT-6) Flood Preparedness – Recommended Best Practices
https://www.cclepc.org/docs/Flood-Prepare-fact_sheet.pdf
- UNH Stormwater Center: The Benefits of Low Impact Development
https://www.unh.edu/unhsc/sites/unh.edu.unhsc/files/docs/FTL_FactSheet2%20LR.pdf
- New Hampshire Coastal Flood Risk Summary Part 1: Science
<https://scholars.unh.edu/cgi/viewcontent.cgi?article=1209&context=ersc>
- New Hampshire Coastal Flood Risk Summary Part 2: Guidance
<https://scholars.unh.edu/cgi/viewcontent.cgi?article=1210&context=ersc>